

# HITACHI

## SERVICE MANUAL



SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

### 8mm VIDEO CAMERA/RECORDER

February 1996 Image & Information Media Systems Division, Tokai

TK

No.6601E

VM-E220A/E520A/E521A  
VM-H620A/H720A

## TH MECHANISM

Manual related to the VM-E220A/E520A/  
E521A/H620A/H720A

This model uses a TH MECHANISM.  
Refer to the following manuals for the  
TH MECHANISM.

Name of Manual	Manual No.	Chapter included
VM-E110A/E310A VM-E410A/E510A	6505E	Chapter 2
TH MECHANISM	6406E	—
VM-AC85A	6607E	—
VM-IR20A	6603E	—
VM-E220A Parts List	6601E-1	—

### CAUTION (COLOR LCD EVF)

LCD display; the liquid crystal display (LCD) panel is made by highly precise technology. More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This does not indicate a fault as the LCD panel stretches the limits of current technology.

### CAUTION (CRT EVF)

Be careful of the section painted in white on the electronic viewfinder circuit board as it generates a high voltage.

### PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

### X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be the same type as the original, Hitachi approved one.

### How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the TYPE identifications.

TYPE identification	Model name
TYPE 220 →	VM-E220A
TYPE 520 →	VM-E520A
TYPE 521 →	VM-E521A
TYPE 620 →	VM-H620A
TYPE 720 →	VM-H720A

### Differences table of main features

Model name	Nor-8	Hi-8	MONO	STEREO	EIS	FADE	16:9 CINEMA	OPTICAL OUTPUT	WIND CUT DET	W/B EVF	COLOR EVF
VM-E220A	○	—	○	—	×	×	×	×	×	—	○
VM-E520A	○	—	○	—	○	○	○	×	○	—	○
VM-E521A	○	—	○	—	○	○	○	○	○	—	○
VM-H620A	—	○	—	○	○	○	○	×	○	○	—
VM-H720A	—	○	—	○	○	○	○	×	○	—	○

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## CHAPTER 1

## GENERAL INFORMATION

### Specifications

#### General Specifications

Power requirements	6V DC
Power consumption	VM-H620A: 5.3W (when recording) VM-H720A: 5.9W (when recording)
Dimensions	3-11/16" W x 4-3/4" H x 8-5/16" D (94mm x 120mm x 211mm)
Weight	VM-H620A: 1.91lbs(approx. 870g) without battery pack, lens hood, lens cap or cassette VM-H720A: 1.89lbs(approx. 860g) without battery pack, lens hood, lens cap or cassette
Operating temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage temperature	-4°F ~ 140°F (-20°C ~ 60°C)

#### Video Recorder Specifications

Format	8mm
Record/playback	Two video record/playback heads
Video signal	EIA standard NTSC color
Tape speed	14.3mm/sec
Video input	1.0Vp-p, 75 ohm
Video output	1.0Vp-p, 75 ohm
Audio input	-7.8dBs (316mVrms)
Audio output	-7.8dBs (316mVrms)
Fast forward/rewind time	Less than 8 minutes with P6-120 cassette

#### Camera Specifications

Scanning	525 lines/60 fields/30 frames
Required minimum illumination	2lux
Pickup device	1/4" C.C.D.
Lens diameter	46mm

# COMPARISON OF FEATURES

⇐ : SAME AS LEFT

I T E M		VM-E220A	VM-E520A/E521A	VM-H620A	VM-H720A	VM-E510A	VM-H710A
GENERAL	POWER REQUIREMENTS	6.0V DC	⇐	⇐	⇐	⇐	⇐
	POWER CONSUMPTION	5.3Watts (when recording)	5.4Watts (when recording)	5.3Watts (when recording)	5.9Watts (when recording)	5.3Watts (when recording)	5.9Watts (when recording)
	DIMENSIONS (W×H×D mm)	94×120×211	⇐	⇐	⇐	⇐	⇐
	WEIGHT (gr)	Approx. 850	Approx. 860	Approx. 870	Approx. 860	Approx. 855	Approx. 858
	OPERATION TEMPERATURE/HUMIDITY	32° F ~ 104° F	⇐	⇐	⇐	⇐	⇐
	STORAGE TEMPERATURE	-4° F ~ 140° F	⇐	⇐	⇐	⇐	⇐
VIDEO	FORMAT	8mm	⇐	8mm (Hi-8)	⇐	8mm	8mm (Hi-8)
	RECORD/PLAYBACK SYSTEM	2 HEADS + Flying Erase HEAD	⇐	⇐	⇐	⇐	⇐
	TAPE SPEED	SP : 14.3mm/sec	⇐	⇐	⇐	⇐	⇐
	F.F/REW TIME	Less than 8minutes With P6-120 cassette	⇐	⇐	⇐	⇐	⇐
	HEAD WHEEL	40mm	⇐	⇐	⇐	⇐	⇐
	BASIC CHASSIS TYPE	TH MECHANISM	⇐	⇐	⇐	⇐	⇐
CAMERA	AUTO HEAD CLEANING	NO	⇐	⇐	⇐	⇐	⇐
	REQUIRED MINIMUM ILLUMINATION	1 lux	⇐	2 lux	⇐	1 lux	2 lux
	CAMERA DEVICE	1/4" C.C.D	⇐	⇐	⇐	⇐	⇐
	LENS DIAMETER	46mm	⇐	⇐	⇐	⇐	⇐
	ZOOM RATIO/APERTURE	12 : 1 (4mm - 48mm) / f1.6	⇐	⇐	⇐	⇐	⇐
	ZOOM SPEED	1 SPEED	⇐	⇐	⇐	⇐	⇐
OTHER FEATURES	ELECTRONIC VIEWFINDER	LCD (Color)	⇐	CRT (Black & White)	LCD (Color)	⇐	⇐
	ELECTRONIC IMAGE STABILIZER	NO	YES	⇐	⇐	⇐	⇐
	AI AUTO WHITE BALANCE	YES	⇐	⇐	⇐	⇐	⇐
	DIGITAL SIGNAL PROCESSOR	YES	⇐	⇐	⇐	⇐	⇐
	ELECTRICAL ZOOM	NO	MAX: ×36 (24×1.5)	⇐	⇐	⇐	⇐
	INSTANT (INST.) ZOOM	YES (×1.5)	⇐	⇐	⇐	⇐	⇐
	AUTOFOCUS SYSTEM	VIDEO AF	⇐	⇐	⇐	⇐	⇐
	PROGRAM AE (SHUTTER SPEED)	YES (Program AE only)	⇐	⇐	⇐	⇐	⇐
	TITLER	YES (2 LINE)	⇐	⇐	⇐	⇐	⇐
	S-CONNECTOR OUTPUT	NO	⇐	YES	⇐	NO	YES
	CAMERA LIGHT SHOE	YES	⇐	⇐	⇐	⇐	⇐
	MICROPHONE	MONAURAL	⇐	STEREO	⇐	MONAURAL	STEREO
	MIC/EDIT IN JACK	NO/NO	⇐	⇐	⇐	⇐	⇐
	FADE	NO	YES	⇐	⇐	⇐	⇐
	DATE SEARCH	YES	⇐	⇐	⇐	⇐	⇐
	16×9 MODE	NO	YES	⇐	⇐	⇐	⇐
	WIND CUT SWITCH	NO	YES(AUTO)	⇐	⇐	⇐	⇐
	MANUAL/AUTO FOCUS	SELECTIVE	⇐	⇐	⇐	⇐	⇐
	×2 PLAY	YES	⇐	⇐	⇐	NO	⇐
	OPTICAL CONNECTION	NO	YES (For VM-E521A)	NO	⇐	⇐	⇐
ACCESSORIES	AC ADAPTER/CHARGER	VM-AC85A	⇐	⇐	⇐	VM-AC84A	⇐
	AV OPTICAL WIRELESS RECEIVER	NO	VM-1R20A (For VM-E521A)	NO	⇐	⇐	⇐
	BATTERY PACK	VM-BP82G	⇐	⇐	⇐	⇐	⇐
	REMOTE CONTROL	VM-RME55A (OPTION)	VM-RME55A	VM-RME70A	⇐	⇐	⇐
	EASY EDIT REMOTE CONTROL	VM-RM20EDA (OPTION)	⇐	⇐	⇐	NO	⇐



## COMPARISON OF MAIN CONTROL ICs

← : SAME AS LEFT

ITEM	VM-E220A/E520A/E521A/H620A/H720A	VM-E110A/E310A/E410A/E510A/H710A
SENSOR/GYRO		
CCD SENSOR	ICX068/086 (IC1001)	ICX056AK/068AK (IC1001)
GYRO (VERT.)	ENC-05EA-02 (IC1401)	←
GYRO (HORIZ.)	ENC-05EB-02 (IC1402)	←
GYRO RESET	TC4W66F (IC1404)	←
GYRO AMP	NJU7032M (IC1403)	←
SENSOR DRIVE		
CDS/AGC	HA118184F (IC1101)	←
A/D CONV.	HD49319A (IC1102)	←
DIGITAL PROCESS	HG51CS035TEA (IC1103)	HG51CS035TE (IC1103)
DRIVE PULSE GEN.	μPD16510GR (IC1104)	←
D μP	HD6433042TBF (IC1106)	HD6433042T01F (IC1106)
EEP-ROM	MX25S67MR (IC1107)	S-2939G1F (IC1107)
AUTO FOCUS		
IRIS DRIVE	—	NJM3414AM (IC1201)
F.DET	—	NJM3403A (IC1202)
F.DET/IRIS DRIVE	UPC5023GS-105 (IC1201)	—
GAIN SW	—	TC4S66F (IC1203)
ZOOM MOTOR DRIVE	MPC17AT85VM (IC1301)	MPC17A852VM (IC1301)
FOCUS MOTOR DRIVE	MPC17AT85VM (IC1302)	MPC17A852VM (IC1302)
BUF.	—	HD74HCT244T (IC1303)
SYSTEM CONTROL		
SYSTEM CONTROL μP	CXP87240-107Q (IC0901)	CXP87240A-102Q (IC0901)
BACK-UP DET	S84206F (IC0902)	←
CHARA. GEN.	XLU5949AFS (IC0904)	←
LEVEL SHIFT	HD74HCT125T (IC0903)	←
SERVO		
SERVO CONTROL	CXP87240-107Q (IC0901)	CXP87240A-102Q (IC0901)
ATF	UPC5023GS-079-E1 (IC0601)	←
CAPST. MOTOR DRIVE	LB1881V (IC0631)	←
CYL. MOTOR DRIVE	LB1888V (IC0631)	LB1885MA (IC0631)
LOADING MOTOR DRIVE	BAG417F (IC0671)	BAG477F (IC0671)
AUDIO		
AUDIO PROCESS	HA118193F/-01 (IC0401)	←
DC-DC CONVERTER		
PWM	TL1464IPT (IC0551)	←
PRE AMP		
VIDEO HEAD SW	HA118189MPER (IC0101)	←
PHASE EQ/FM PEAK	UPC5023GS-101-E1 (IC0102)	—
LUMINANCE/CHROMA		
LUMA/CHROMA PROCESS	HA118192AF/372F (IC0201)	←
1H DELAY	CXL5516N (IC0202)	←
CCD 1H DELAY	CXL5507M (IC0203)	←
VIDEO AMP	UPC5023GS-104-E1 (IC0204)	MM1029AT (IC0204)
CRT EVF		
VIDEO AMP./V.H DEFLECTION	HA118179F (IC2001)	←
LCD EVF		
EVF VIDEO PROCESS	IR3Y18A (IC2101)	IR3Y18 (IC2101)
PULSE GEN.	ETM3030TOA (IC2202)	←
12V REG	NJM431U (IC2181)	←
AV TRANSMITTER		
AV MOD.	AN2001SB (IC0001)	—

## SERVICE MANUAL ABBREVIATION LIST

A	
ACC	Automatic Color Control
ACK	Automatic Color Killer
ADC B-Y	Analog to Digital Converted B-Y Signal
ADC R-Y	Analog to Digital Converted R-Y Signal
ADC Y	Analog to Digital Converted Luminance
ADD	Adder
ADRS	Address
A.DUB	Audio Dubbing
AF	Autofocus
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
ALC	Automatic Level Control
AIC	Automatic Iris Control
AM	Amplitude Modulation
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemble (Phase Matching)
AUD.	Audio
AUX	Auxiliary
ASV	Always 5V B+ Source
B	
B (BLU)	Color Signal BLUE
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BH	Power Supply for Selecting VHF High Band
BL	Power Supply for Selecting VHF Low Band
BLK	Blanking
BM	Power Supply for Selecting VHF Mid Band
BPF	Bandpass Filter
BS	Power Supply for Selecting VHF Super Band
BU	Power Supply for Selecting UHF Band
BU	Back-up
BUF.	Buffer Amplifier
B-YL	Battery
C	
C	Chroma
C (CHROMA)	Chrominance Signal
CAPST.	Capstan
CAS	Column Address Strobe
CARR1.	Carrier
CATV	Cable TV
C.BLANK	Chroma Blanking
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CG	Character Generator
C.FG/CFG	Capstan Frequency Generator
C.FREE RUN	Chapstan Free Run
CH	Channel
CHD	Camera Horizontal Drive Pulse
CHAR.	Character
CHROMA	Chrominance
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COM.	Composite
COMPA	Comparator
COMPE	Compensator
COMPO	Composite
CCMP-EXP	Compressor-Expander
CONV.	Converter
CONT	Control
CORR.	Correlation
COUNT.	Counter
CP	Clamp Pulse
C.PAUSE	Camera Pause
C/R	Capacitor/Resistor
C.RESET	Counter Reset
C.REVERSE	Count Reverse
CST	Cassette

C	
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
CY (CYAN)	Color Signal CYAN
D	
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deemphasis
DEF	Deflection
DEMOK.	Demodulator
DEMPX	Demultiplexer
DET	Detector
DIFF. AMP	Differential Amplifier
DISCRI.	Discriminator
DISP.	Display
DL	Delay Line
DN	Down
DO	Dropout
DOC	Dropout Compensator
DRAM	Dynamic Random Access Memory
D.REF 25/30	Delayed Reference 25/30Hz
D.SW 25/30	Delayed Switching 25/30Hz
DSP	Digital Signal Processor
DT/OE	Data Transfer/Output Enable
D/W	Dark/White
DWC	Delayed Write Clock
E	
EA-ROM	Electrically Alterable Read Only Memory
E-E	Electronic-to-Electronic
EMPHA.	Emphasis
EQ	Equalizer
EVF	Electronic Viewfinder
EXT.	External
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed Back
FF	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
FRAME ADV	Frame Advance
Fsc	Color Sub Carrier Frequency
FWD	Forward
G	
GEN	Generator
GND	Ground
H	
H	Horizontal
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HLT	Halt
HPF	High-pass Filter
HPL	High-pass Limiter
HSS	Horizontal Sync. Separator
I	
IF	Intermediate Frequency
INC	Row Counter Increment
IND1.	Indicator
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
IRIS DET	Iris Detection
IRT	Instant Recording Timer
L	
LCD	Liquid Crystal Display
LIN.	Linear
LM	Loading Motor

L	
LNC	Line Noise Cancellor
LOG	Logarithm
LP	Long Play
LP (H)	Long Play Signal (Active High)
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M. BRAKE	Main Brake
M. CUT	Monitor Cut
MEM.	Memory
MEM ON	Memory ON
MEM SW	Memory Switch
MEM VIDEO	Memorized Video
MIX	Mixer
MMV	Monostable Multivibrator
MOD.	Modulator
MPX	Multiplex
MPX VIDEO	Multiplexed Video
M. STATE	Mechanism State
M. STOP	Memory Stop
MTS	Multi Channel Television Sound
N	
NEG	Negative
NFB	Negative Feed Back
NORM. or NOR.	Normal
NR	Noise Reduction
O	
OB	Optical Black
O/E	Odd/Even Field
OSC	Oscillator
OSD	On-Screen Display
P	
PB/PLAY	Playback
P. CONT	Power Control
PIF	Picture Intermediate Frequency
PG	Pulse Generator
P IN P	Picture in Picture
PIX MOVE	Picture Move
PLL	Phase Locked Loop
POS.	Positive
POWER CONT.	Power Control
PROG.	Program
PROTECT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal RED
RAM	Random Access Memory
RAS	Row Address Strobe
RC	Reading Clock
RCC	Reading Clock Clear
RCR	Row Counter Reset
REC	Record
RECT.	Rectifier
REF	Reference
REF 25/30	Reference 25/30Hz from servo circuit
REG	Regulator
REL	Refresh Control
REW	Rewind
REV	Reverse
RF	Radio Frequency
RM	Reel Motor
ROM	Read Only Memory
R-YL	Color Difference Signal R-YL
S	
SAP	Second Audio Program
SAW	Sawtooth
SC	Serial Control
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)

S	
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEP.	Separator
SG	Signal Generator
S/H	Sample and Hold
SIF	Sound Intermediate Frequency
SOL	Solenoid
SP	Standard Play
SP/LP	Standard Play/Long Play
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STAB1.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW 15Hz	15Hz Head Switching Pulse
SW 25/30Hz	25/30Hz Head Switching Pulse
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
T/L	Tuner/Line
TP	Test Point
T.REEL	Take-up Reel Sensor
T.RESET	Timer Reset
TRS	Transfer
T $\mu$ P	Timer Microprocessor
TU- $\mu$ P	Tuning Microprocessor
U	
U/D	Up/Down
UNI.	Unified
V	
V (VERT)	Vertical
VAR	Variable
V.AGC	AGC Voltage
VCA	Voltage Controlled Amplifier
VCO	Voltage Controlled Oscillator
V.DRV	Vertical Drive Pulse
V.DUB	Video Dubbing
V/F	Voltage to Frequency Converter
VHS	Video Home System
VF	Focus Voltage
VOL.	Volume
V-REF	Voltage Reference
VP	Vertical Pulse
VSS	Vertical Sync. Separator
Vss	Voltage Super Source
VT	Tuning Voltage
VT-U	Tuning Voltage-UHF
VT-V	Tuning Voltage-VHF
VCO	Voltage Controlled Crystal Oscillator
W	
WC	Write Clock
WCC	Write Clock Clear
WE	Weighting
WHT	Color Signal WHITE
WIDE	Wide Angle
WHD	Wide Horizontal Drive
WHT BAL CONT.	White Balance Control
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YE (YELLOW)	Color Signal YELLOW
YL	Luminance Signal (Low Component)
ANOTHER	
$\mu$ P	Microprocessor
5V	ON 5V B+ Source
9V	ON 9V B+ Source

# LEADLESS (CHIP) COMPONENT IDENTIFICATION

## 1. Leadless Transistor

The part name of a leadless transistor is indicated by a code on its surface, using one letter, one letter and one numeral, two letters, two letters and one numeral, two numerals, two numerals and one letter, three letters, or four letters.

Note: There are transistors with the same code but different part names, or with the same part name but different codes. Refer to the parts lists to finally identify a transistor.

CODE	PART NAME	CODE	PART NAME
Leadless (Chip) Transistor			
3925	2SC3925	BR	2SC2412K
1CQ	2SB902	BR	2SC4617
1D	2SC3127	BS	2SC2412K
1DS	2SD1328S	C-7	2SA811
1DT	2SD1328	C1G	KSC1623
1R	2SB970TX	CB	2SC3646
2BQ	2SK374PQ	CC	2SA1122C
2BR	2SK374QR	CC	2SC3647T
2Y	2SC3757	CC	2SC3647
2YQ	2SC4691	CD	2SA1122D
3N	2SK620	CE	2SA1122E
4N	XN5601	CK	2SD999
4Q	XN1B301	CP	2SC4097
4R	XN1C301	CQ	2SC2411K
5C	XN4601	CR	2SB710
5C	XP4601	CR	2SC2411
5H	XP4501	CR	2SB1219
5H	XN4501	D16	2SC1622A
5K	XP4401	D17	2SC1622A
5K	XN4401	D18	2SC1622A
5L	XN5501	DB	2SD1766
5N	XN6501	DE	2SC2463
5O	XN6401	DF	2SD1623
5R	XP1501	DF	2SD1898
5R	XN1501	DG	2SD1624
5S	XN1504	DK	2SB798
5V	XN1401	EC	2SA1022
5W	XN2501	F-2	2SC1009F2
5X	XN4504	F-3	2SC1009F3
7R	XN2401	F-4	2SC1009F4
7S	XN1601	FC	2SC2619
AA	2SD1757K	FR	2SA1774
AKQ	2SA1738	FR	2SA1037K
AKQ	2SA1806	FR	2SA1576R
AL	2SA1791	FS	2SA1037K
AM	2SC4656	GC	2SC2734
AO	2SB709AQR	GM	3SD1615
AQ	2SB709AQ	HQ	2SA1036K
AQ	2SB766	IC	2SC3016
AR	2SB1462	IRD	2SA1484
AR	2SB766	IS	2SB792S
AR	2SB709ARS	IT	2SB792T
AR	ASB1218R	L-4	2SC1623L4
AS	2SB766	L-5	2SC1623L5
AS	2SB709AS	L-6	2SC1623L6
B3	2SC1621B3	L-6	2SC2812L6
B4	2SC1621B4	L-7	2SC2812L7
BC	2SB1188	L5	MWB1623L5
BD	2SB1121	L6	MWB1623L6
BE	2SB1260	LB	2SC2462B
BF	2SB1123	LC	2SC2462C
BF	2SB1308	LD	2SC2462D
BG	2SB1124	LR	2SC2412KLN
BH	2SB1001	M-5	2SA812
BQ	2SB709A	M-6	2SA1179
BR	2SC4081R	MC	2SA1052MC

CODE	PART NAME	CODE	PART NAME
Leadless (Chip) Transistor			
MD	2SA1052MC-D	ZS	2SD874S
N3	2SC1653	VR	2SD968A
ND	2SD1306ND	W1	FMW1
NE	2SD1306NE	W10	FMW10
PD	2SA1171D	W2	FMW2
PS	2SD814	W3	FMW3
QB	2SC2620QB	WR	2SD602
QC	2SC2620QC	X1	UMX1
QO	2SC2714	X1	IMX1
R22	2SC4226	X2	IMX2
R22	2SC3356	Y1	FMV1
R32	2SC4227	Y12	2SA1464
R34	2SC3583	Y25	NTM3906
R42	2SC3585	Y3	FMV3
RB	2SC2618RB	YCD	2SK197
RC	2SC2618RC	YI	2SA1666
RK	2SC3357	YQ	2SD601YQ
S1	FMS1	YR	2SD601YR
S2	FMS2	YR	2SD1819R
SC	2SA1121	YR	2SD2216
SO	2SA1162	YS	2SD601YS
SP	2SC3082K	Z1	IMZ1
T1	IMT1	Z2	IMZ2
T1	UMT1	Z0	2SD874T
T2	IMT2	ZQ	2SD601A
UD	2SC2404	ZR	2SD874R
Digital Transistor			
3	DTIC143TK	6C	UN9113
4	DTIC144TK	6S	XP4113
6	DTIC144TK	8B	UN5212
13	DTA143EK	8C	UN9213
14	DTA144EK	8C	UN2213
15	DTA124K	8S	XP4213
15	DTA124EU	9L	XP1213
16	DTA144EU	9L	XN1213
16	XDA144EK	A1	FMA1
16	DTA144EE	A1	UMA1
23	DTIC143EK	A2	FMA2
24	DTIC114EU	B2	UMB2
24	DTIC144EK	B2	IMB2
25	DTIC124EU	C2	FMC2
25	DTIC124K	C5	FMC5
26	DTIC144EE	D2	IMD2
26	DTIC144EU	F52	DTB123
26	XDC144EK	G1	FMG1
33	DTA143XK	G2	FMG2
43	DTIC143XK	G21	DTD113ZK
52	DTA123YK	G5	FMG5
60	UN511F	H03	DTC343TK
64	DTIC144YK	H2	IMH2
80	UN521F	H2	UNH2
4P	XN1A312T	H27	DTC363EK
6B	UN5112	R04	KSR1104
6C	UN2113	R31	FP1L2Q
FET			
30	2SK621	WS	2SK322T
1FQ	2SK321FQ	WT	2SK322T
1FR	2SK321FQR	X15	2SK425
1KP	2SK316	X4	2SK94
2BQ	2SK663	XAF	2SK980FG
DY	2SK1579	YC	2SK197YC
JO	2SK208	YD	2SK197YD
K	3SK166	YE	2SK197YE
K4	2SK160K4	ZD	2SK217ZD
K5	2SK160K5	ZE	2SK217ZE
KB	2SK323		

## (1) Identification with two letters

Use this code and the following chart for transistor identification.

Example:

Code	Part name
CD	2SA1122D
LD	2SC2462D

C	D
---	---

Rank of DC current gain (hFE)  
Part name of transistor

## (2) Identification with one letter and one numeral

Use this code and the following chart for transistor identification.

Example:

Code	Part name
L5	2SC1623(5)
L6	2SC1623(6)

L	5
---	---

Rank of DC current gain (hFE)  
Part name of transistor

Example:

Code	Part name
ID	2SC3127D

I	D
---	---

Rank of DC current gain (hFE)  
Part name of transistor

Note: Codes S1, S2, T1, W1, W2, W3, X1, Y1, Y3, Z1 and Z2 encode only the part names.

## (3) Identification with one numeral and two letters

Use this code and the following chart for transistor identification.

Example:

Code	Part name
1FQ	2SK321Q

1	F	Q
---	---	---

Rank of DC current gain (hFE)  
Part name of transistor

## (4) Identification with one letter and two numerals

Use this code and the following chart for transistor identification.

Example:

Code	Part name
R25	2SC3356

R	2	5
---	---	---

Rank of DC current gain (hFE)  
Part name of transistor

## (5) Identification with to letters and one numeral

Use this code and the following chart for transistor identification.

Example:

Code	Part name
DV5	2SD596

D	V	5
---	---	---

Rank of DC current gain (hFE)  
Part name of transistor

## (6) Identification with three letters

Use this code and the following chart for transistor identification.

Example:

Code	Part name
AAS	2SD1757KS

A	A	S
---	---	---

Rank of DC current gain (hFE)  
Part name of transistor

## 2. Leadless Diode

The part name of a leadless diode is indicated by a code on the surface, using one letter and one numeral, two letters, two letters and one numeral, two numerals and one letter, or three numerals. Use this code and the following table to identify the part name of a diode.

Note: Refer to the parts lists to finally identify a diode.

CODE	PART NAME	CODE	PART NAME
Diode			
0	HVU300A	3D	RB715F
1.0	1SV201	3.0L	MA3030L
2.0	MA3020	3.6L	MA3036L
5.1	MA3051L	3.9L	MA3039L
5.1	MA3051M	4.3H	MA3043H
6.8	MA3068	4.3L	MA3043L
6.8	MA3068M	4.3M	MA3043M
7.5	MA3075L	4.7L	MA3047L
8.2	MA3082M	4.7M	MA3047M
9.1	MA3091	5.1H	MA3051H
20	1TZM6	5.1L	MA3051L
24	1SV221	5.1M	MA3051M
27	RD2.7M B	5.6M	MA3056M
30	RD3.0M B	6.2L	MA3062L
51	RD5.1M B2	6.2M	MA3062M
56	RD5.6M B	6.8H	MA3068H
91	RD9.1M B	6.8L	MA3068L
102	RD10M B2	6.8M	MA3068M
122	RD12M B2	6.8M	MA3068
163	RD16M B3	7.5H	MA3075H
182	RD10M B2	7.5L	MA3075L
271	RD2.7M B	8A	UN221D
272	D2.7M B2	8.2H	MA3082H
301	RD3.0M B	8.2M	MA3082M
362	D3.6M B2	9.1M	MA3091M
391	D3.9M B1	9.1M	MA3091
512	RD5.1M B2	10L	MA3100L
561	RD5.6M B	10M	MA3100M
621	RD6.2M B1	11L	MA3110L
681	PD6.8M	12M	MA3120M
683	RD6.8M B3	13H	MA3130H
911	RD9.1M B	18M	MA3180M
2.7H	MA3027H	36M	MA3360
Zener Diode			
1A	MA110	M3A	MA199
A3	1S2835	MC	MA153
A4	HSN2836C	MC	MA143
A5	1S2837	MH	MA141K
A6	HSN2838C	MH	MA151K

CODE	PART NAME	CODE	PART NAME
Zener Diode			
B	SB0505CP	MH	MA152K
B64	SFPB64	M1	MA132K
B74	SFPB74	MN	MA141WA
BE	1SV172	MN	MA152WK
C1	HSM88S	MN	MA151WA
C2	HSM276S	NO	MA132WA
C3	1SS226	NO	MA152WA
C4	HSM88WK	NP	MA133
F7	KV1470	MT	MA151WK
H5	HVM14	MT	MA141WK
J	SB07-03C	MO	MA132WK
K	DA221	MO	MA151WA
M1A	MA159	N	DAN222
M1C	MA158	N	DAN202T
M1M	MA721	NU	MA152WK
M1N	MA713DAT	P	DAP202T
M1P	MA714	S4	D1FS4
M2A	MA122	SA	SB10-05P
M2B	MA123	Z	DA106K

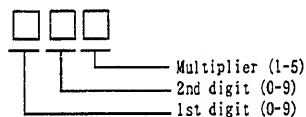
### 3. Leadless Resistor

The resistor value is indicated on its surface, using three numerals, or one letter and one numeral.

- (1) Identification with three numerals  
Read this code following the same procedure as when reading the color code on discrete resistors.

Example :

code	value
330	$33 \times 10^0 = 33 \text{ ohms}$
561	$56 \times 10^1 = 560 \text{ ohms}$
123	$12 \times 10^3 = 12K \text{ ohms}$
1R2	$1 + 0.2 = 1.2 \text{ ohms}$
	(R: Decimal point)

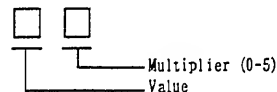


- (2) Identification with one letter and one numeral  
Use this code and the following chart for resistor identification.

Letter	Value	Letter	Value	Letter	Value
A	1	J	2.2	S	4.7
C	1.2	L	2.7	U	5.6
E	1.5	N	3.3	W	6.8
G	1.8	Q	3.9	Y	8.2

Example :

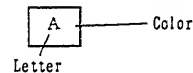
code	value
A1	$1 \times 10^1 = 10 \text{ ohms}$
G2	$1.8 \times 10^2 = 180 \text{ ohms}$
L3	$2.7 \times 10^3 = 2700 \text{ ohms}$
S4	$4.7 \times 10^4 = 47K \text{ ohms}$
W5	$6.8 \times 10^6 = 680K \text{ ohms}$



### 4. Leadless Capacitors

The capacitor value is indicated on its surface, using body color and one letter, or one letter and one numeral.

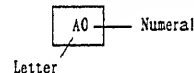
### (1) Identification with body color and one letter



Body Color	Letter	Value	Body Color	Letter	Value
Red	A	1(PF)	Blue	A	100(PF)
	C	2		C	120
	E	3		E	150
	G	4		G	180
	J	5		J	220
	L	6		L	270
	N	7		N	330
	Q	8		Q	390
	S	9		S	470
Black	A	10(PF)	White	A	0.001(μF)
	C	12		E	0.0015
	E	15		J	0.0022
	G	18		L	0.0027
	J	22		N	0.0033
	L	27		S	0.0047
	N	33		W	0.0068
	Q	39	Green	A	0.01(μF)
	S	47		E	0.015
	U	56		J	0.022
	W	68		N	0.033
	Y	82		S	0.047
				U	0.056
			Yellow	A	0.068
					0.1(μF)

Example: Color	Letter	Value
Red	A	1PF
Black	A	10PF

### (2) Identification with one letter and one numeral



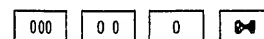
Letter/Numeral	Value	Letter/Numeral	Value
A0	1(PF)	A2	100(PF)
H0	2	C2	120
M0	3	E2	150
d0	4	G2	180
f0	5	J2	220
m0	6	L2	270
n0	7	N2	330
t0	8	Q2	390
y0	9	S2	470
A1	10(PF)	U2	560
C1	12	W2	680
E1	15	Y2	820
G1	18	A3	0.001(μF)
J1	22	E3	0.0015
L1	27	J3	0.0022
N1	33	N3	0.0033
Q1	39	S3	0.0047
S1	47	W3	0.0068
U1	56	A4	0.01(μF)
W1	68	E4	0.015
Y1	82	J4	0.022
		N4	0.033
		S4	0.047
		U4	0.056
		W4	0.068
		A5	0.1

Example:	Letter/Numeral	Value
	A0	1PF
	A1	10PF

### 5. Leadless Jumper

The leadless jumper is indicated as shown below.

(1) (2) (3) (4)



## JIGS AND TAPES FOR ADJUSTMENT

1. ALIGNMENT TAPE COLOR BAR/400Hz (20HSC-2) No. 7099231	2. CASSETTE TORQUE METER SRK-8T-132 No. 7099235 SRK-8T-112 No. 7099385	3. MASTER PLANE No. 7099237	4. REEL DISK HEIGHT JIG No. 7099238
5. SPECIAL DRIVER No. 7099239	6. ATF-R JIG (SW3:ON) No. 7099461	7. C12 LIGHT BALANCE FILTER 46mm φ No. 7099369	8. 3-PIN EXTENSION CABLE No. 7069113
9. 2-PIN EXTENSION CABLE No. 7069038	10. 8-PIN EXTENSION CABLE No. 7069115	11. 10-PIN EXTENSION CABLE No. 7069039	12. 9-PIN EXTENSION CABLE No. 7069040
13. 20-PIN EXTENSION CABLE No. 7069112	14. DSP AV OUTPUT JIG No. 7099456	15. DSP-R JIG No. 7099448	※16. ADJUSTMENT FLOPPY DISK (3.5 inch) No. 7069142
※17. ADJUSTMENT FLOPPY DISK (5 inch) No. 7069143	★18. PERSONAL COMPUTER	★19. PERSONAL COMPUTER 9-PIN or 25-PIN CABLE	◆20. AV INPUT CABLE
◎21. AV OUTPUT CABLE (For normal 8 model)		(for Hi-8 model)	

### MARKS

- ※ : New jigs and tools
- ★ : Goods on the Market
- ◆ : Optional Accessory
- ◎ : Accessory

### NOTE

- 1: Always set SW3 on the ATF-R jig to ON.
- 2: The ATF jig (No. 7099386) can also be used in place of ATF-R jig to adjust this model.
- 3: The DSP jig (No. 7099442) can also be used in place of DSP-R jig to adjust this model.
- 4: Either the monaural or stereo AV input/output cable can be used.

## HOW TO USE THE EXTENSION CABLE

No.	NAME OF EXTENSION CABLE	PARTS No.	HOW TO USE (PURPOSE OF USE)
8	3-PIN EXTENSION CABLE	7069113	<ul style="list-style-type: none"> <li>For power supply. (Blue: Negative, Yellow: Positive)</li> <li>Power supply cable after the case removed.</li> </ul>
9	2-PIN EXTENSION CABLE	7069038	<ul style="list-style-type: none"> <li>Installed between the VCA circuit board and loading motor.</li> </ul>
10	8-PIN EXTENSION CABLE	7069115	<ul style="list-style-type: none"> <li>Installed between the VCA and DCS circuit boards.</li> </ul> <p>NOTE— Do not use this extension cable for "(1) Power Shutoff Level Adjustment" in the VCR adjustment section.</p>
11	10-PIN EXTENSION CABLE	7069039	<ul style="list-style-type: none"> <li>Installed between the VCA circuit board and cylinder.</li> </ul> <p>NOTE— Using this extension cable causes noise to occur in the playback picture. This cable is used to check voltage and waveforms. Check the picture quality in the regular connection state.</p>
12	9-PIN EXTENSION CABLE	7069040	<ul style="list-style-type: none"> <li>Installed between the VCA circuit board and capstan motor.</li> </ul>
13	20-PIN EXTENSION CABLE	7069112	<ul style="list-style-type: none"> <li>Installed between the SPE and VCA circuit boards.</li> </ul>

ADVICE: When connecting an extension cable, it is convenient that you use a remote control to operate the camera/recorder.

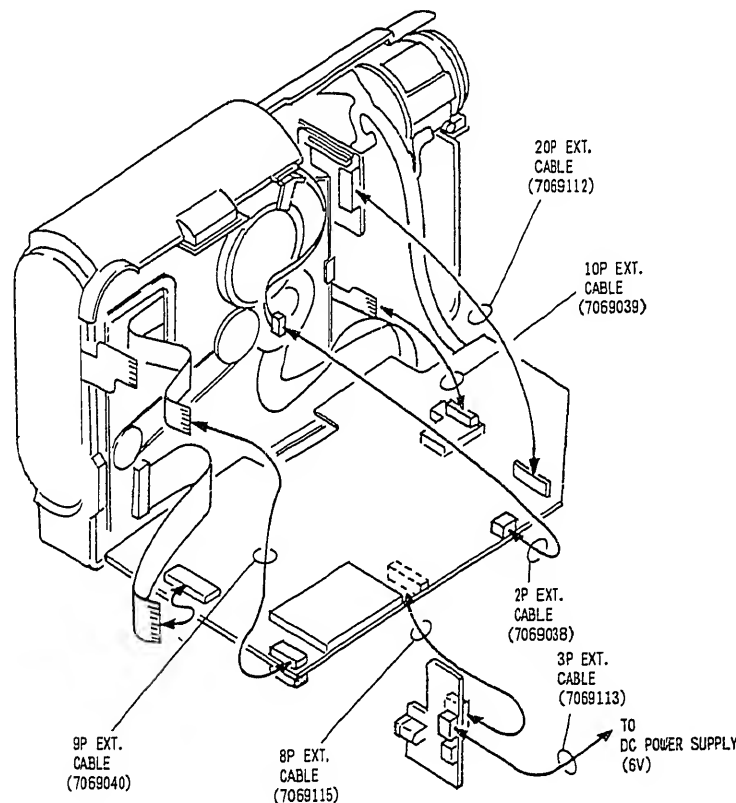


Fig. 1-1 Extension Cable Connection Diagram

## MAINTENANCE/INSPECTION PROCEDURE

### 1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatibility with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

### 2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

Average hours used per day	When inspection is necessary		
	About 6 months	About 9 months	About 18 months
One hour			
Two hours			
Three hours			

### 3. Check before starting Repairs

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

### 4. Tools Needed for Inspection and Maintenance

- (1) Head cleaning kit
- (2) VCR oil and grease (Table 3)
- (3) Alcohol
- (4) Gauze
- (5) Cleaning tape [Maxell 8M-CL MCA (dry type)]

Table 3 Locations for Greasing and Oiling

Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

### 5. Maintenance Procedures

#### 5-1 Cleaning

##### (1) Cleaning video head

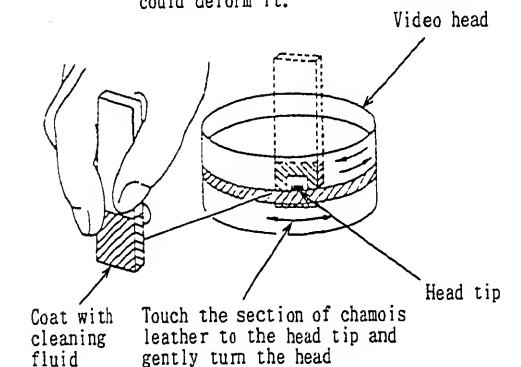
First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

##### (2) Cleaning the tape transport system and drive system, etc.

Wipe with gauze moistened with alcohol.

Notes: 1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.

2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.





## 5-2 Lubrication

- (1) Guide lines for lubricating with oil  
Use the oiler to apply one or two drop of Sonic Slidas oil. Make sure not to use too mach oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with alchohol.
- (2) Periodic oil lubrication  
Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

## 5-3 Greasing

- (1) Greasing guidelines  
Apply grease Froil or Molicoat, with a stick or brush. DO not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistend with alcohol.
- (2) Periodic greasing  
Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

Caution: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

Component	Hours	500	1000	1500	2000	2500	3000
Video heads (cylinder assembly)		C	C/R	C	C/R	C	C/R
Supply guide roller		C	C	C	C	C	C
Supply guide pole		C	C	C	C	C	C
Take-up guide roller		C	C	C	C	C	C
Pull-out pole		C	C	C	C	C	C
Tension pole		C	C	C	C	C	C
Tension band			R		R		R
Supply reel disk		C	C	C	C/R	C	C
Take-up reel disk		C	C	C	C/R	C	C
Pressure roller		C	C	C	C/R	C	C
Impedance roller		C	C	C	C	C	C
Capstan belt					R		
Reel drive idler					R		
Capstan shaft (capstan motor)		C	C	C	C/R	C	C
Loading motor					R		

C : Cleaning

R :Parts replacing

## CHAPTER 2

## DISASSEMBLY

### 1. CHANGE OF "4. COMPONENTS REMOVAL" [For Type521]

This describes only the differences from the "VM-E110A/E310A/E410A/E510A" manual issued previously.

#### 4. Mic Unit, Left Case, Camera Block, Main Block

CHANGED

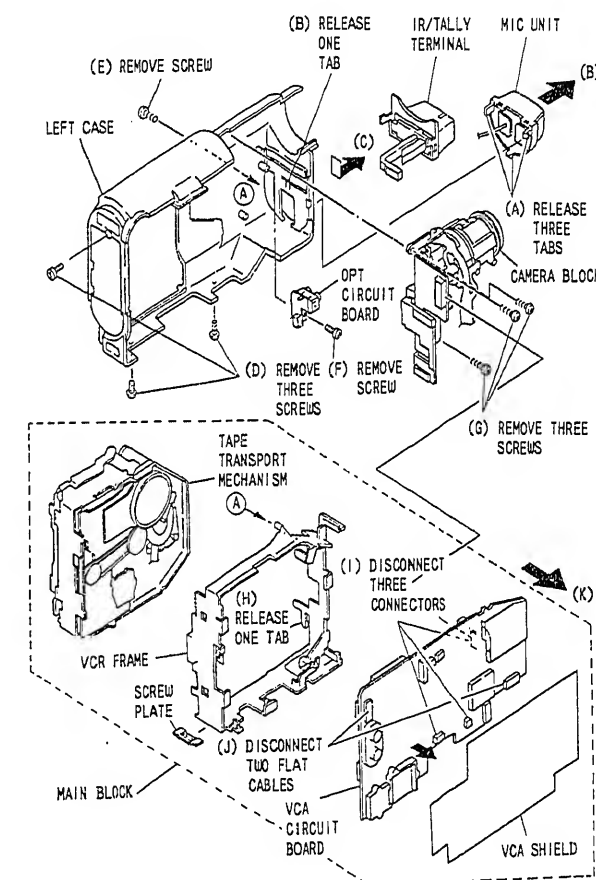


Fig. 4-4

## 2. CHANGE OF "TH MECHANISM"

This describes only the differences from the "TH MECHANISM" manual issued previously.

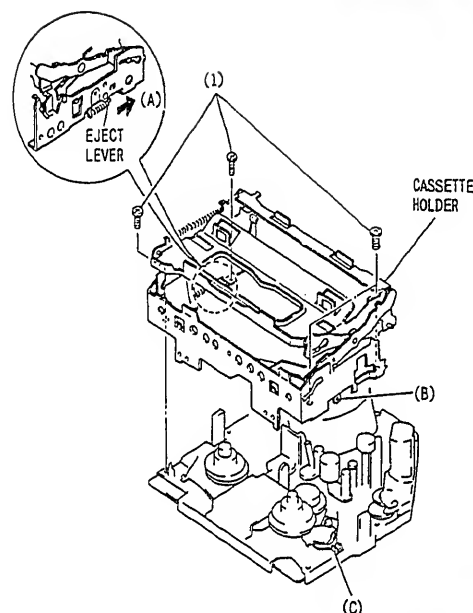
### 1. DISASSEMBLY

#### 2-1. Cassette holder (Fig. 2-1)

- 1) Move the eject lever in the direction of arrow (A) and set the unit to the eject state.

#### Caution when reinstalling

- Reinstall the cassette holder so that section (B) of the eject lock slider is inserted into section (C) of the eject lock arm.



#### 2-12. Chassis plate, Take-up reel disk (Fig. 2-13)

- 1) Remove screw (1) holding the chassis plate.
- 2) Remove the chassis plate from the chassis.
- 3) Pull out the take-up reel disk from the take-up reel disk shaft.

#### Caution when reinstalling

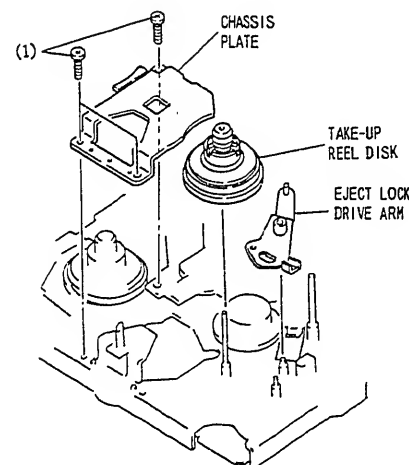
- When reinstalling the chassis plate, make sure the flange covers over the edges of the tension band.

#### 2-13. Eject lock drive arm (Fig. 2-13)

- 1) Remove the eject lock drive arm from the chassis plate.

Caution when reinstalling  
Reinstall the eject lock drive arm so that pin (B) of the eject lock arm is inserted into hole (A) in the eject lock drive arm.

DELETED



## 3-2. Loading Gears and Loading Ring (Figs. 3-2, 3-3)

### Caution

- Be careful that the phase of the mechanism state switch which was matched in item 3-1 does not drift.

### Procedure of phase matching in assembly

- 1) Align the markings of the loading ring and gears as shown in Fig. 3-2.

Caution: When reinstalling the pressure roller cam gear, set the eject lock drive arm to the position shown in Fig. 3-3 and check that pin (j) is inserted into groove (J) in the back of the pressure roller cam gear.

Advice: If it is difficult to see marking (D) on the lower loading ring, match the phase by the following procedure.

- ① Set the upper and lower loading rings to the state shown in Fig. 3-2. (Watch the guide roller fixing section.)
- ② Move the upper and lower loading rings so that holes (H) overlap each other.
- ③ If holes (H) overlap each other, the phase of the loading ring is correct.
- ④ If holes (K) overlap each other, the phase of the loading relay gear (4) is correct.

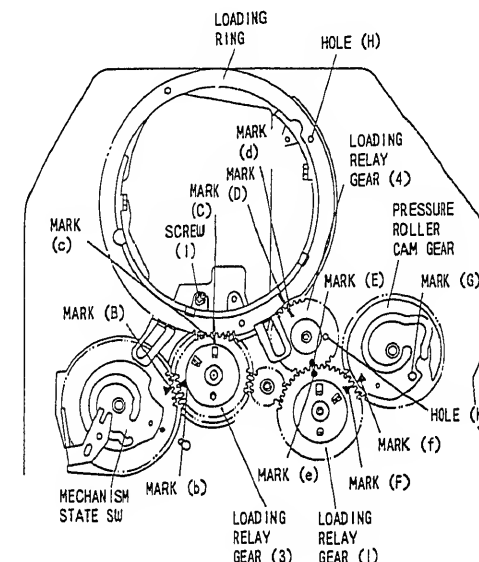


Fig. 3-2

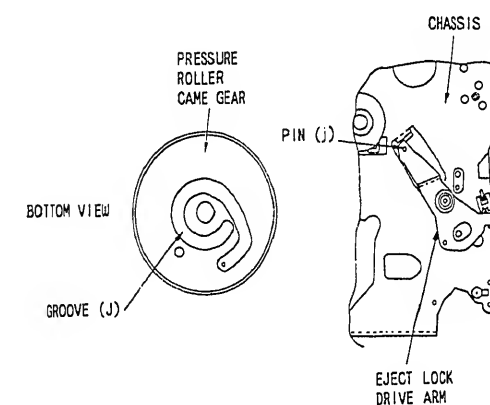


Fig. 3-3

## 2. MECHANISM ADJUSTMENT

### 3-3. Supply/Take-up Guide Roller Height Adjustment (Figs. 3-4, 3-5)

#### Caution

Be sure to check this item after reinstalling the supply guide roller and take-up guide roller. Basically, the height of the supply/take-up guide rollers should not be adjusted. Adjust these heights only if they are abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
<ul style="list-style-type: none"> <li>Alignment tape</li> <li>Oscilloscope</li> <li>ATF-R jig</li> <li>Special driver</li> </ul>	<ul style="list-style-type: none"> <li>Test Plug on Main board</li> <li>TP1(SW25/30) on ATF-R jig</li> <li>TP2(GND) on ATF-R jig</li> <li>TP3(FM OUT) on ATF-R jig</li> </ul>	<ul style="list-style-type: none"> <li>Connect the ATF-R jig to test plug.</li> <li>ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)</li> </ul>	Top of guide rollers
<p>◆Adjustment procedure</p> <p>Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig. Connect the ATF-R jig before supplying power.</p> <p>1) After inserting the alignment tape which was completely rewound, set the camera/recorder to the test mode by the following procedure. [Procedure to set to the test mode] ① Remove the power supply from the camera/recorder. ② Set the CAMERA/OFF/VCR switch to VCR position. ③ Check that the ATF-R jig (SW1: OFF, SW3: ON) is connected and then press the playback button and hold it, then supply the power again to the camera/recorder.</p> <p>&lt;Note&gt; 1. If the mechanical block operates (enters the playback mode) simultaneously when the power is supplied again, the camera/recorder does not enter the test mode. Restart from step (1) again. 2. The test mode is released when the power supply is removed from the camera/recorder.</p> <p>2) Connect an oscilloscope to TP3 on the ATF-R jig and press the PLAY button.</p> <p>3) Synchronize the oscilloscope with TP1 (SW25/30) on the ATF-R jig.</p> <p>4) Set the oscilloscope to (+) slope.</p> <p>◆Take-up Guide Roller (Fig. 3-5) 11) Set the oscilloscope to (-) slope. 12) Adjust the voltage level control of the oscilloscope so that portion (B) of the waveform is set to 4 graduations.</p> <p>13) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is <math>1.8 \pm 0.1V</math>. Then check that point (B) of the waveform is set to 3 graduation.</p> <p>14) Adjust the height of the take-up guide roller so the minimum amplitude of the waveform is set to NTSC: <math>2.5 \pm 0.3</math> / PAL: <math>2.3 \pm 0.3</math> graduations.</p> <p>Caution: After adjustment is completed, be sure to reverse the modification to ATF-R jig.</p> <p>CHANGED</p> <p>NTSC: <math>2.3 \pm 0.3</math> PAL: <math>2.5 \pm 0.3</math></p> <p>Fig. 3-4</p> <p>CHANGED</p> <p>NTSC: <math>2.3 \pm 0.3</math> PAL: <math>2.5 \pm 0.3</math></p> <p>Fig. 3-5</p>			

### 4. ADJUSTMENT AFTER REPLACING THE CYLINDER (Figs. 4-1, 4-2)

When the cylinder is replaced, the height relative to the guide roller drifts, therefore the tape transport system and servo circuit should be adjusted. Check and adjust in the following order.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
<ul style="list-style-type: none"> <li>Alignment tape</li> <li>Oscilloscope</li> <li>ATF-R jig</li> <li>Special driver</li> </ul>	<ul style="list-style-type: none"> <li>Test Plug on Main board</li> <li>TP1(SW25/30) on ATF-R jig</li> <li>TP2(GND) on ATF-R jig</li> <li>TP3(FM OUT) on ATF-R jig</li> </ul>	<ul style="list-style-type: none"> <li>Connect the ATF-R jig to test plug.</li> <li>ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)</li> </ul>	Top of guide rollers
<p>◆Adjustment procedure</p> <p>Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig.</p> <p>1) After inserting the alignment tape which was completely rewound, set the camera/recorder to the test mode by the following procedure. [Procedure to set to the test mode] ① Remove the power supply from the camera/recorder. ② Set the CAMERA/OFF/VCR switch to VCR position. ③ Check that the ATF-R jig (SW1: OFF, SW3: ON) is connected and then press the playback button and hold it, then supply the power again to the camera/recorder.</p> <p>&lt;Note&gt; 1. If the mechanical block operates (enters the playback mode) simultaneously when the power is supplied again, the camera/recorder does not enter the test mode. Restart from step (1) again. 2. The test mode is released when the power supply is removed from the camera/recorder.</p> <p>2) Connect an oscilloscope to TP3 on the ATF-R jig and press the PLAY button.</p> <p>3) Synchronize the oscilloscope with TP1(SW25/30) on the ATF-R jig.</p> <p>4) Set the oscilloscope to (+) slope.</p> <p>5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.</p> <p>6) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.</p> <p>7) Set SW1 on the ATF-R jig to ON.</p> <p>8) Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduations.</p> <p>9) Adjust the height of the supply guide roller so the minimum amplitude of the waveform is set to NTSC: <math>2.3 \pm 0.3</math> / PAL: <math>2.5 \pm 0.3</math> graduations. (See Fig. 4-1)</p> <p>10) If this cannot be confirmed, adjust the height of the supply guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".</p> <p>11) Set the oscilloscope to (-) slope.</p> <p>12) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is <math>1.8 \pm 0.1V</math>. Then check that point (B) of the waveform is set to 3 graduation.</p> <p>13) Check that the minimum amplitude of the waveform is set to NTSC: <math>2.3 \pm 0.3</math> / PAL: <math>2.5 \pm 0.3</math> graduations. (See Fig. 4-2) If this cannot be confirmed, adjust the height of the take-up guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".</p> <p>CHANGED</p> <p>NTSC: <math>2.3 \pm 0.3</math> PAL: <math>2.5 \pm 0.3</math></p> <p>Fig. 4-1</p> <p>CHANGED</p> <p>NTSC: <math>2.3 \pm 0.3</math> PAL: <math>2.5 \pm 0.3</math></p> <p>Fig. 4-2</p>			

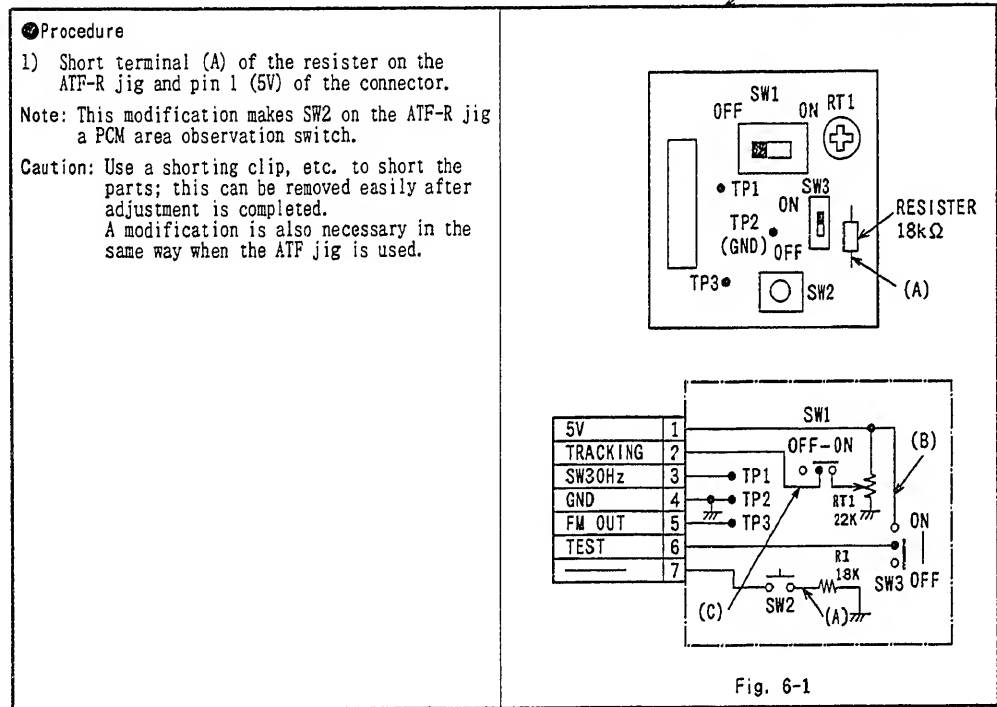
5. CHECKING THE TORQUE

There are two types of cassette torque meter.  
Choose the applicable one for the measurement to be performed.

Item	VCR mode	Measured reel disk	Torque value	Torque cassette used
Take-up torque	Playback	Take-up	7-13 g-cm	SRK-8T-212 SRK-8T-232
Rewind torque	Reverse search	Supply	25-37 g-cm	SRK-8T-232
Take-up brake torque	Reverse search to stop	Take-up	10 g-cm ro more	SRK-8T-212 SRK-8T-232
Slack removal torque	Unloading	Supply	25-37 g-cm	SRK-8T-232

6. MODIFICATION TO ATF-R JIG (Fig. 6-1)

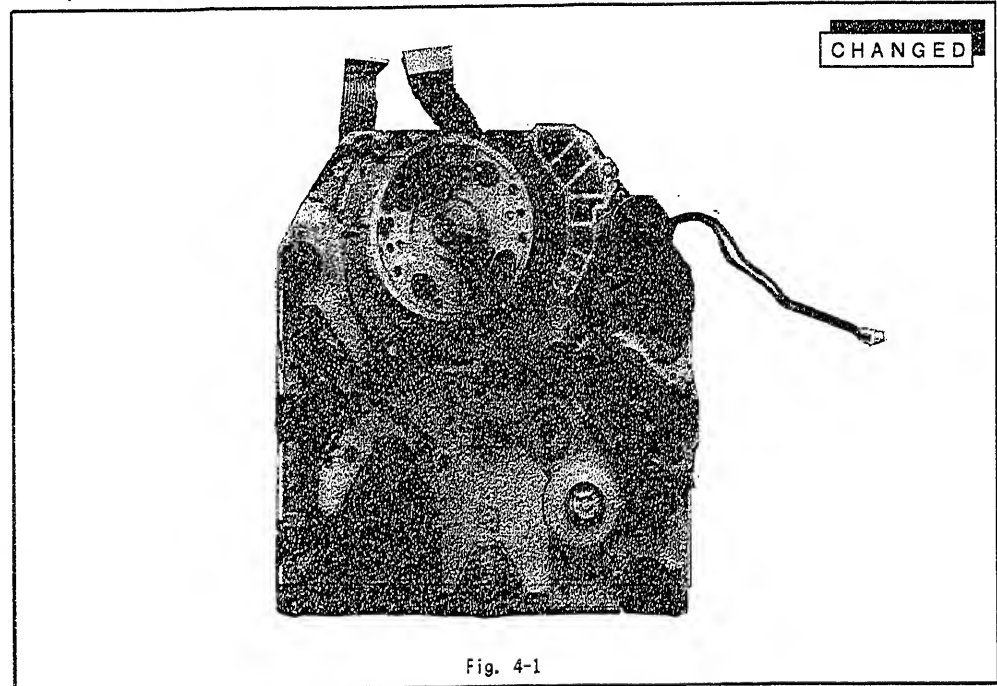
Caution: The ATF-R jig must be modified for the following adjustments.  
After completing these, be sure to reverse the modification.  
• 3-3. Supply/Take-up Guide Roller Height Adjustment  
• 4. ADJUSTMENT AFTER REPLACING THE CYLINDER



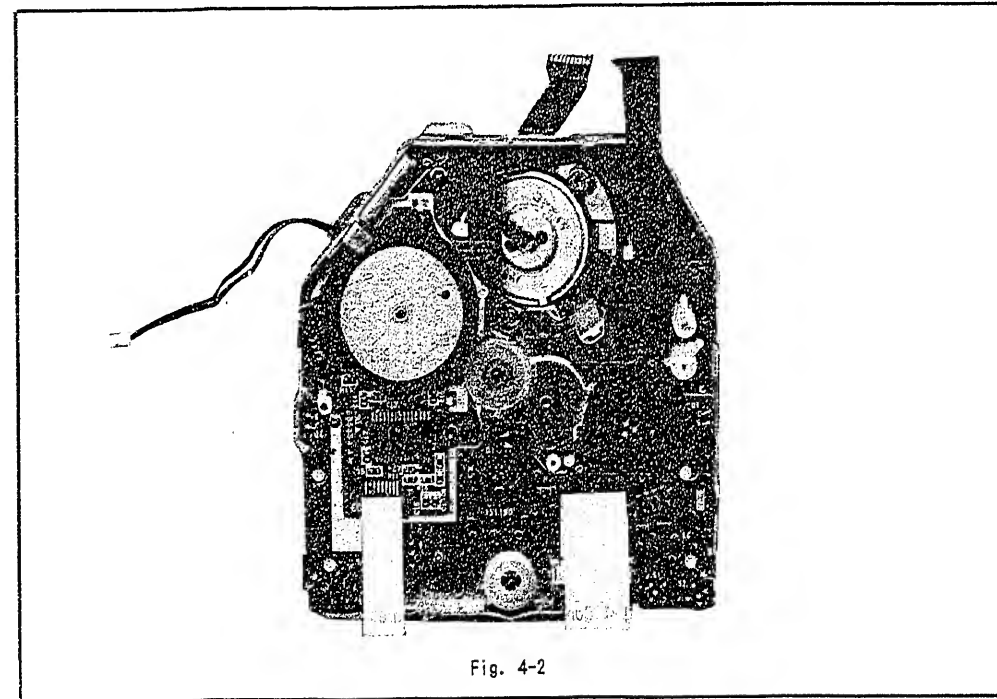
4. PHOTOS OF MECHANISM

-Refer to these when reinstalling and perform phase matching in assembly.

4-1. Top View of Mechanism



4-2. Bottom View of Mechanism



# CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

## ELECTRICAL ADJUSTMENT

### Abbreviation

MAP .... Digital adjustment program for the camera  
 DSP .... Digital signal processor

### 1. CONNECTION FOR ADJUSTMENT

- Most adjustment items can be done without dismantling the camera/recorder.
- Connect the EVF to display the operation mode on the monitor screen.

- ◆ To perform the following adjustments, set the camera/recorder to the state as shown in CHAPTER 1 Extension Cable Connection Diagram, referring to "CHAPTER 2 DISASSEMBLY".
  - VCR Section Adjustments
  - Electronic Viewfinder Adjustments
- (The EVF block should further be taken apart.)

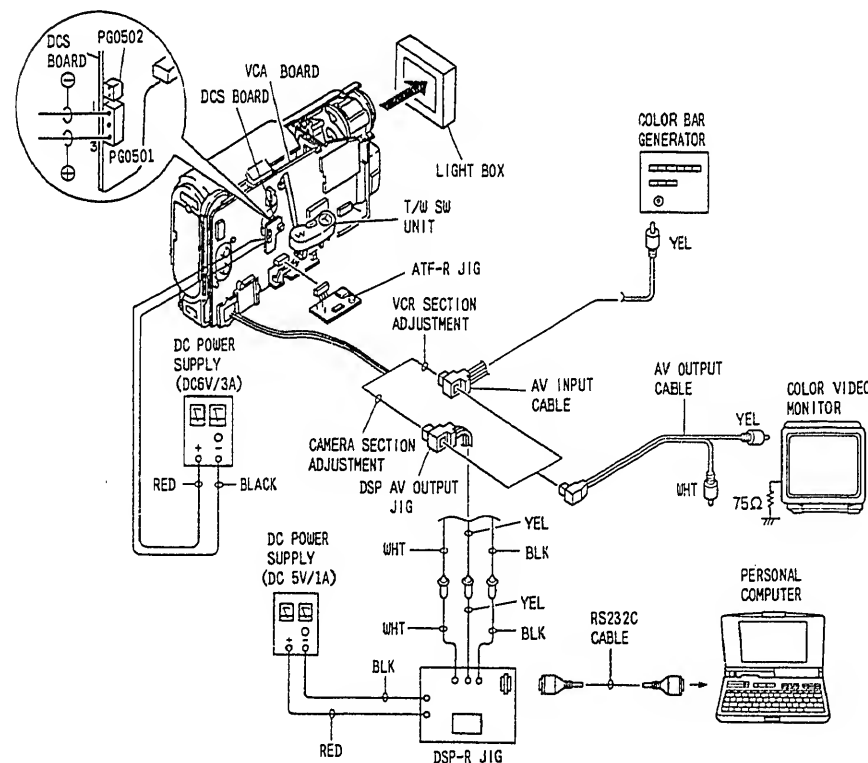


Fig. 1-1 Connection for adjustment

## 2. CAMERA SECTION ADJUSTMENT

### 1. CIRCUIT BOARD LOCATIONS

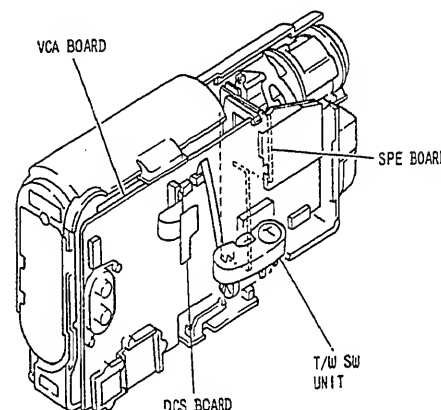


Fig. 2-1

### 2. TEST EQUIPMENT AND CHARTS NECESSARY FOR ADJUSTMENT

- 1) Test Equipment
  - Oscilloscope (dual trace) [Vectorscope]
  - Digital Voltmeter (DVM)
  - Frequency Counter
  - Color Video Monitor
- 2) Charts, etc.
  - Adjustment Floppy Disk
  - Personal Computer
  - Personal Computer 9-pin or 25-pin (RS232C) Cable
  - DSP-R Jig
  - DSP AV Output Cable
  - Gray Scale Chart
  - Color Bar Chart
  - Resolution Chart
  - Backfocus Adjustment Chart
  - Light Box (3100°K)
  - Light Balancing Filter C12
  - DC Power Supply (DC6V/3A)
  - DC Power Supply (DC5V/1A)

### 3. ADJUSTMENT CONDITION

- 1) Check that the VCR section has been adjusted correctly before adjusting the camera section.
- 2) Use a light box with minimum flickering. Control the colour temperature of the light box strictly.
- 3) Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
- 4) When using the video out (AV OUT) to perform adjustment, be sure to terminate the AV OUT jack with 75 ohms.
- 5) Place the chart (light box) approx. 30cm away from the camera (lens surface) when otherwise not specified.
- 6) Point the camera at the chart to full the video period when otherwise not specified.
- 7) Use the 10:1 probe of the oscilloscope when otherwise not specified.
- 8) When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

### 4. PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

- CAMERA/OFF/VCR switch ..... "CAMERA" position
- INST. ZOOM ..... Not Display mode
- DATE ..... Not Display mode
- DISPLAY ..... Not Display mode
- TITLE ..... Not Display mode
- FOCUS ..... Auto mode
- EIS ..... OFF mode
- 16×9 ..... OFF mode
- FADE ..... Normal mode

### 5. LIST OF CHARTS FOR CAMERA ADJUSTMENT

Table 2-1

GREY SCALE CHART	COLOR BAR CHART	RESOLUTION CHART
BACKFOCUS ADJ. CHART		



## 6. CHECK AFTER REPLACING MAJOR COMPONENTS IN THE CAMERA SECTION

After replacing major components, perform adjustments, referring to the table below. The following table shows the minimum adjustments required after major components are replaced. The table below may not apply when several components are replaced, depending on the symptom of the defect.

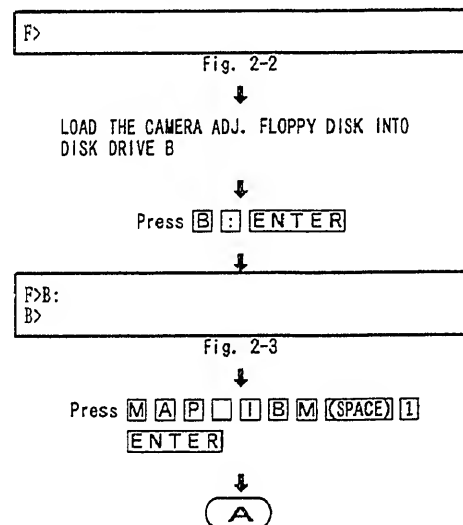
Caution : When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "7-3 Initial Setting by Model", then perform all the camera section and system control/servo circuits adjustments.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS									
		SPE BOARD	VCA BOARD	IC1001	IC1101	IC1106	IC1107	IC1201	IC1103	IC1401 IC1402	IC1403
—	Initial Setting by Model		●				●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE											
(1)	CDS Offset Adjustment		●		●		●				
(2)	CDS Sampling pulse		●				●		●		
DIGITAL ADJUSTMENT PROCEDURE											
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●			
(2)	Knee Adjustment		●		●		●				
(3)	Matrix Adjustment	●	●	●			●				
(4)	White balance Adjustment	●	●	●			●				
(5)	Chroma gain Adjustment	●	●	●			●				
AUTO FOCUS ADJUSTMENT PROCEDURE											
(1)	Zoom Trace Adjustment	●	●	●			●				
(2)	AF Noise Level Adjustment	●	●	●			●				
STABILIZER ADJUSTMENT PROCEDURE											
(1)	Stabilizer Adjustment	●	●				●			●	●
SPOT NOISE ADJUSTMENT PROCEDURE											
(1)	Spot Noise Adjustment		●	●			●				

## 7. CAMERA SECTION ADJUSTMENT PROCEDURE

### NOTE

- 1: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jigs.
- 2: The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
- 3: When the error message appears during adjustment, refer to "4. Error Messages". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.



## 7-1. Connections for Adjustment

Connect the camera/recorder, DSP-R jig, personal computer, power supply, etc. as shown in Fig. 1-1. Check that the camera/recorder is turned on.

## 7-2. How to start the MAP

### PROCEDURE

- 1) Turn the personal computer on and start the MS-DOS system. (Fig. 2-2)
- 2) Load the adjustment floppy disk into disk drive B and press [B] then [ENTER].  
or  
drive A and press [A] then [ENTER]. (Fig. 2-3)
- 3) Press [M] [A] [P] [I] [B] [M] [SPACE] [1] then [ENTER].  
The MAP starts and the MODEL SELECT shown Fig. 2-6 appears.  
NOTE  
When you use a personal computer with two serial interface connectors and connect the DSP-R jig to serial interface connector 2, press MAP IBM 2.
- 4) Select the number according to the model. If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.
- 5) Press [Y] key. (Fig. 2-7)  
If [N] is pressed, the computer's display returns to MODEL SELECT MENU.

### NOTE

1. If you specify the wrong model, press [ESC] (escape) to restore the MODEL SELECT display, then specify the correct model.
2. If you select number without a model name by mistake, the message shown in Fig. 2-9 will appear in the computer's display. Press any key to return the display to Fig. 2-6 (MODEL SELECT).
3. If the required model is not found, press the [P] key and select the model from the next screen.

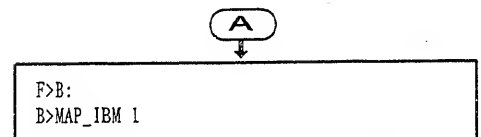


Fig. 2-4

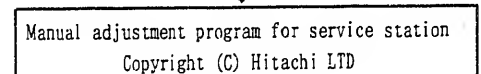


Fig. 2-5

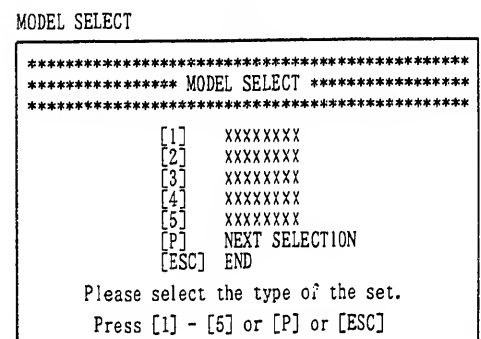


Fig. 2-6

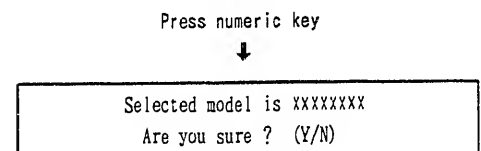


Fig. 2-7

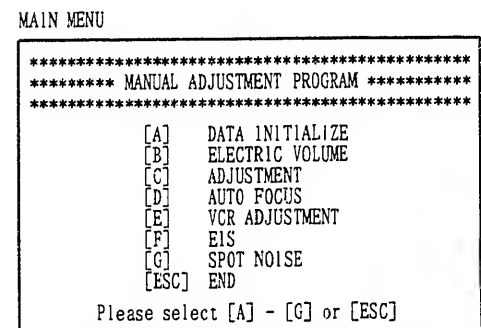


Fig. 2-8

## MESSAGE WHEN OPERATED BY MISTAKE

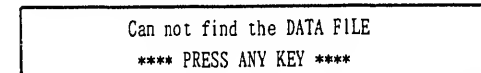


Fig. 2-9

### 7-3. Initial Setting by Model

#### ◆ Before Starting Adjustment

- This item describes how to initialize the EEPROM. Be sure to perform this item after replacing EEPROM or the VCA circuit board. When other components are replaced, normally, it is not necessary to initialize the EEPROM. Press **ESC** (escape) to return the computer's display to MAIN MENU.
- Be sure to perform the following adjustments after completing the initial setting.

CAMERA	7-4	Electric Volume Adjustment Procedure
	7-5	Digital Adjustment Procedure
	7-6	Autofocus Adjustment Procedure
VCR	7	System Control/Servo Circuits Adjustment

#### — PROCEDURE —

- 1) Start the MAP.
  - 2) Press **A** to select INITIALIZE. (Figs. 2-10, 2-11)
  - 3) Press **Y** to start. (Figs. 2-11, 2-12)
- NOTE
- Press **N** to return to MAIN MENU. (Fig. 2-11)
  - The Fig. 2-11 appears a few time Press the **Y** key each time.

- 4) If there are no abnormalities in the camera/recorder, the message shown in Fig. 2-12 is displayed in the computer's display for a while, and then the message informing you that the initial setting has been completed (shown in Fig. 2-13) is displayed.

- 5) If the message shown in Fig. 2-13 appears in the computer's display, press any key. The computer's display returns to Fig. 2-10 (MAIN MENU).

### MAIN MENU

```

*****
***** MANUAL ADJUSTMENT PROGRAM *****
*****
[A] DATA INITIALIZE
[B] ELECTRIC VOLUME
[C] ADJUSTMENT
[D] AUTO FOCUS
[E] VCR ADJUSTMENT
[F] EIS
[G] SPOT NOISE
[ESC] END
Please select [A] - [G] or [ESC]
  
```

Fig. 2-10



Press **A**



```

<< DATA WRITING >>
START TO SEND DATA. (Y/N)
  
```

Fig. 2-11



Press **Y**



```

<< DATA WRITING >>
PLEASE WAIT A MOMENT.
  
```

Fig. 2-12



```

<< DATA WRITING >>
PLEASE WAIT A MOMENT.
FINISHED WRITING DATA.
PRESS ANY KEY.
  
```

Fig. 2-13



Press any key to return to Fig. 2-10

### 7-4. Electric Volume Adjustment Procedure

#### ◆ Before Starting Adjustment

- When EEPROM or the VCA circuit board is replaced, initialize the EEPROM, referring to "7-3. Initial Setting By Model" then perform all the electric volume adjustments.

#### — PROCEDURE —

- 1) Start the MAP.
- 2) Press **B** to select ELECTRIC VOLUME. (Figs. 2-14, 2-15)
- 3) Select the number of the required adjustment.

#### — NOTE —

1. If **ESC** (escape) is pressed, the computer's display returns to Fig. 2-14 (MAIN MENU).
2. To complete adjustment, press the **ESC** (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

### MAIN MENU

```

*****
***** MANUAL ADJUSTMENT PROGRAM *****
*****
[A] DATA INITIALIZE
[B] ELECTRIC VOLUME
[C] ADJUSTMENT
[D] AUTO FOCUS
[E] VCR ADJUSTMENT
[F] EIS
[G] SPOT NOISE
[ESC] END
Please select [A] - [G] or [ESC]
  
```

Fig. 2-14



Press **B**



### ELECTRIC VOLUME ADJ. MENU

```

*****
***** ELECTRIC VOLUME *****
*****
[1] CDS OFFSET
[2] CDS SAMPLING PULSE
[ESC] RETURN TO MAIN MENU
Please select [1], [2] or [ESC]
  
```

Fig. 2-15

# (1) CDS Offset Adjustment

Purpose	•To determine the DC offset levels when the AGC is set to the minimum and maximum gains.
Incompleted Phenomenon	•When a subject is illuminated brightly in low lighting, a white band appears across the top of the screen.
Test Point	_____
Equipment/Jig	_____
Condition	_____

## PROCEDURE

### ELECTRIC VOLUME ADJ. MENU

```

*****
***** ELECTRIC VOLUME *****
*****
[1]  CDS OFFSET
[2]  CDS SAMPLING PULSE
[ESC] RETURN TO MAIN MENU
Please select [1], [2] or [ESC]

```

Press **[1]** key to select the CDS OFFSET.

<< ADJUSTMENT OF CDS OFFSET >>  
PLEASE WAIT AROUND 50 SEC.

<< ADJUSTMENT OF CDS OFFSET >>  
PLEASE WAIT AROUND 50 SEC.  
FINISHED WRITING DATA.  
ADJUSTMENT COMPLETED.  
PRESS ANY KEY.

Press any key to return to ELECTRIC VOLUME ADJ. MENU.

Turn the power off for 5 seconds and then on again.

# (2) CDS Sampling Pulse Adjustment

Purpose	•To suppress noise in the CCD sensor output signal and maximize the signal level.
Incompleted Phenomenon	•Diagonal beats and horizontal noise occur.
Test Point	_____
Equipment/Jig	_____
Condition	•Leave the camera/recorder for more than 2 minutes until the circuits are stabilized after turning it on, then start adjustment.

## PROCEDURE

### ELECTRIC VOLUME ADJ. MENU

```

*****
***** ELECTRIC VOLUME *****
*****
[1]  CDS OFFSET
[2]  CDS SAMPLING PULSE
[ESC] RETURN TO MAIN MENU
Please select [1], [2] or [ESC]

```

Press **[2]** key to select the CDS SAMPLING PULSE.

<< ADJUSTMENT OF CDS SAMPLING PULSE >>  
<< NOW ADJUSTING >>

<< ADJUSTMENT OF CDS SAMPLING PULSE >>  
FINISHED WRITING DATA.  
ADJUSTMENT COMPLETED.  
PRESS ANY KEY.

Press any key to return to ELECTRIC VOLUME MENU.

# 7-5. Digital Adjustment Procedure

## ◆Before Starting Adjustment

- When EEPROM or the VCA circuit board is replaced, initialize the EEPROM, referring to "7-3 Initial Setting By Model" then perform all the digital adjustments.

NOTE: If an old light box is used, this adjustment may not be done. Use the following procedure to adjust without using a light box.

- Illuminate a white sheet of paper using an appropriate light source of 2,000-2,500lux (a halogen light of 3,200K is desirable).
- Point the camera/recorder at the illuminated white sheet of paper to fill the screen as far as possible (at wide-angle).
- Adjust the distance between the camera/recorder and white sheet of paper so that no error message appears.

## ◆Caution when adjustment

Caution: Perform auto iris adjustment [1. AUTO IRIS CONTROL] and knee adjustment [2. KNEE] in the following order.

- ① Auto Iris Adjustment (Perform the following autofocus adjustment if "ADJUSTMENT OF HALL CURVE" is not completed).
- ② Zoom Trace Adjustment in AUTOFOCUS ADJUSTMENT PROCEDURE.
- ③ AF Noise Level Adjustment in AUTOFOCUS ADJUSTMENT PROCEDURE.
- ④ Auto Iris Adjustment (All three items, "ADJUSTMENT OF IRIS OPEN & CLOSE", "ADJUSTMENT OF IRIS" and "ADJUSTMENT OF HALL CURVE" should be complete).
- ⑤ Knee Adjustment.

## PROCEDURE

- 1) Start the MAP.
- 2) Press **[C]** to select ADJUSTMENT. (Figs. 2-16, 2-17)
- 3) Select the number of the required adjustment.

## NOTE

1. If **[ESC]** (escape) is pressed, the computer's display returns to Fig. 2-16 (MAIN MENU).
2. To complete adjustment, press the **[ESC]** (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

# MAIN MENU

```

*****
***** MANUAL ADJUSTMENT PROGRAM *****
*****
[A]  DATA INITIALIZE
[B]  ELECTRIC VOLUME
[C]  ADJUSTMENT
[D]  AUTO FOCUS
[E]  VCR ADJUSTMENT
[F]  EIS
[G]  SPOT NOISE
[ESC] END
Please select [A] - [G] or [ESC]

```

Fig. 2-16

Press **[C]**

# ADJUSTMENT MENU

```

*****
***** ADJUSTMENT *****
*****
[1]  AUTO IRIS CONTROL
[2]  KNEE
[3]  MATRIX
[4]  WHITE BALANCE
[5]  CHROMA GAIN
[ESC] RETURN TO MAIN MENU
Please select [1] - [5] or [ESC]

```

Fig. 2-17

# (1) Auto Iris Control Adjustment

• Perform this adjustment, following the order described in "◆ Caution When Adjustment" on the previous page.	
Purpose	• To set the iris control data.
Incompleted Phenomenon	• The picture becomes too bright. • The picture becomes too dark.
Test Point	
Equipment/Jig	
Condition	• Point the camera at the light box without a chart to full the screen (at wide-angle).

## PROCEDURE

ADJUSTMENT MENU	
***** ADJUSTMENT *****	
[1]	AUTO IRIS CONTROL
[2]	KNEE
[3]	MATRIX
[4]	WHITE BALANCE
[5]	CHROMA GAIN
[ESC]	RETURN TO MAIN MENU
Please select [1] - [5] or [ESC]	

Press [1] key to select the AUTO IRIS CONTROL.

<<ADJUSTMENT OF IRIS OPEN & CLOSE>> PLEASE WAIT AROUND 10 SEC.	
<<ADJUSTMENT OF IRIS OPEN & CLOSE>> PLEASE WAIT AROUND 10 SEC.	
DATA WRITTEN INTO EEPROM. ADJUSTMENT FINISHED. PRESS ANY KEY.	

Press any key, and the display changes as follows.

<< ADJUSTMENT OF IRIS >> PLEASE WAIT AROUND 20 SEC.	
<< ADJUSTMENT OF IRIS >> PLEASE WAIT AROUND 20 SEC.	
ROUGH ADJUSTMENT	: xx TIMES
FINE ADJUSTMENT	: xx TIMES
ADJUSTMENT FINISHED. PRESS ANY KEY.	

B

Press any key, and the display changes as follows.

<< ADJUSTMENT OF HALL CURVE >> PLEASE WAIT AROUND 30 SEC.	
<< ADJUSTMENT OF HALL CURVE >> PLEASE WAIT AROUND 30 SEC.	
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C	
<< ADJUSTMENT OF HALL CURVE >> PLEASE WAIT AROUND 30 SEC.	
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C	
DATA WRITTEN INTO EEPROM ADJUSTMENT FINISHED PRESS ANY KEY	

Press any key, and the display changes as follows.

ADJUSTMENT FINISHED. PRESS ANY KEY.	
--	--

Press any key to return to ADJUSTMENT MENU.

Turn the power off for 5 seconds and then on again.

### NOTE

1. With some units the following parameter may not be displayed in the display marked \*1. This is normal; continue adjustment.  
ROUGH ADJUSTMENT: xx TIMES
2. The \* mark flashes above the numerals and letters in sequence in the display marked \*2.

# (2) Knee Adjustment (Fig. 2-18)

• Perform this adjustment, following the order described in "◆ Caution When Adjustment" on the page before the previous page.	
Purpose	• To determine the knee level.
Incompleted Phenomenon	• Color in the very bright section is defective.
Test Point	• Video Out (AV OUT)
Equipment/Jig	• Oscilloscope (Waveform Monitor)
Condition	• Point at a gray scale chart.

## PROCEDURE

ADJUSTMENT MENU	
***** ADJUSTMENT *****	
[1]	AUTO IRIS CONTROL
[2]	KNEE
[3]	MATRIX
[4]	WHITE BALANCE
[5]	CHROMA GAIN
[ESC]	RETURN TO MAIN MENU
Please select [1] - [5] or [ESC]	

Press [2] key to select the KNEE.

<< KNEE ADJUSTMENT >> STEP 1	
* THIS ADJUSTMENT ONLY NEEDED AFTER REPLACING IC1101 OR IC1107. *	
* THE [1] IRIS CONTROL ADJUSTMENT SHOULD HAVE JUST BEEN COMPLETED BEFORE PERFORMING THE FOLLOWING KNEE ADJUSTMENT PROCEDURE. *	
PLEASE POINT AT THE CHART AND PRESS THE FOLLOWING KEY.	
RETURN TO MENU	[ESC]
GO TO NEXT STEP	[ENTER]

Press [ENTER] key to start the next step.

<< KNEE ADJUSTMENT >> STEP 1	
*** WAIT A MOMENT ***	

C

<< KNEE ADJUSTMENT >> STEP 2	
SET LUMINANCE LEVEL TO 100 (+/- 5) IRE OR 715 (+/- 35) mV.	
ROUGH ADJUSTMENT	
[U]	UP
[D]	DOWN
FINE ADJUSTMENT	
[Ctrl] + [U]	UP
[Ctrl] + [D]	DOWN
[ENTER]	DECISION

Press the [U] and [D] keys to set the amplitude level to around 715mVp-p.  
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to adjust the amplitude level to 715mVp ± 35mVp-p.

Press [ENTER] key to start the next step.

<< KNEE ADJUSTMENT >> STEP 3	
ADJUST THE LUMINANCE LEVEL TO MATCH THE LEVEL FROM STEP 2.	
ROUGH ADJUSTMENT	
[U]	UP
[D]	DOWN
FINE ADJUSTMENT	
[Ctrl] + [U]	UP
[Ctrl] + [D]	DOWN
[C]	REREAD THE LEVEL FROM STEP 2
[ENTER]	DECISION

Press the [U] and [D] keys to bring the amplitude level near to the level in step 2.  
Press the [Ctrl] key and hold it down, then press the [U] and [D] keys to match the amplitude level to that in step 2.

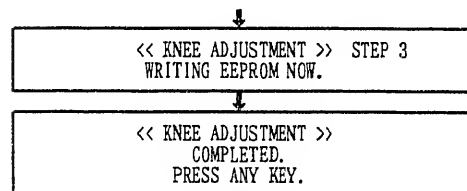
Press the [C] key. The level in step 2 can be checked.

<< KNEE ADJUSTMENT >> STEP 3	
WAVEFORM ON OSCILLOSCOPE IS NOW. DISPLAYING AMPLITUDE AS SET IN STEP 2. (PRESS C TO RETURN TO STEP 3 MENU)	

D

**D**

Press **ENTER** key, and the display changes as follows.



Press any key to return to ADJUSTMENT MENU.

Waveforms

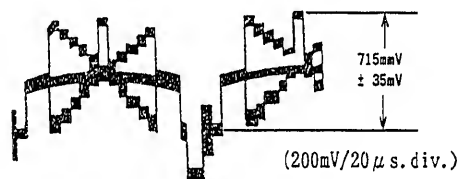


Fig. 2-18

### (3) Matrix Adjustment (Fig. 2-19)

Purpose	To compensate for unevenness in the chroma signal.
Incompleted Phenomenon	Color reproduction becomes defective.
Test Point	•Video Out (AV OUT)
Equipment/Jig	•Oscilloscope
Condition	•Point at a color bar chart.

PROCEDURE

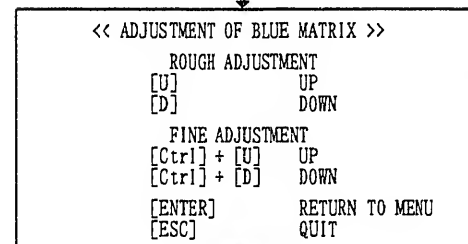
ADJUSTMENT MENU

***** ADJUSTMENT *****	
[1]	AUTO IRIS CONTROL
[2]	KNEE
[3]	MATRIX
[4]	WHITE BALANCE
[5]	CHROMA GAIN
[ESC]	RETURN TO MAIN MENU
Please select [1] - [5] or [ESC]	

**E**

**E**

Press **[3]** key to select the MATRIX.



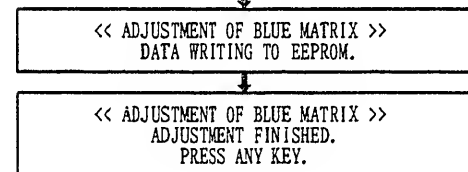
[For Normal 8]

Press the **[D]** key to minimize the yellow (YEL) level. Press the **[U]** key so the ratio between yellow (YEL) and blue (BLU) levels is 3:8. Press the **[Ctrl]** key and hold it down, then press the **[U]** and **[D]** keys so the ratio between yellow (YEL) and blue (BLU) levels is 3:8.

[For Hi-8]

Press the **[D]** key to minimize the yellow (YEL) level. Press the **[U]** key so the ratio between yellow (YEL) and blue (BLU) levels is 1:2. Press the **[Ctrl]** key and hold it down, then press the **[U]** and **[D]** keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:2.

Press **ENTER** key, and the display changes as follows.



Press any key to return to ADJUSTMENT MENU.

Waveforms

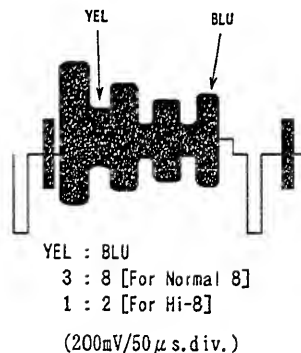


Fig. 2-19

### (4) White Balance Adjustment

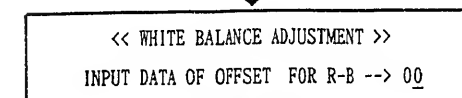
Purpose	To set white balance under the color temperature which becomes a reference for the auto white balance circuit.
Incompleted Phenomenon	•Color of the subject is different from that of the picture. •A white subject is not seen as white.
Test Point	•Video Out (AV OUT)
Equipment/Jig	
Condition	•Attach a C12 filter. •Point at a gray scale chart (at wide-angle).

PROCEDURE

ADJUSTMENT MENU

***** ADJUSTMENT *****	
[1]	AUTO IRIS CONTROL
[2]	KNEE
[3]	MATRIX
[4]	WHITE BALANCE
[5]	CHROMA GAIN
[ESC]	RETURN TO MAIN MENU
Please select [1] - [5] or [ESC]	

Press **[4]** key to select the WHITE BALANCE.



[For Normal 8]

Press **[1][6]** to input the data.

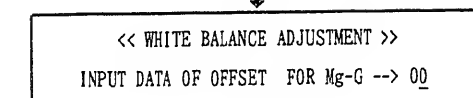
[For Hi-8]

Press **[1][0]** to input the data.

Press **ENTER** key, and the display changes as follows.

**F**

**F**



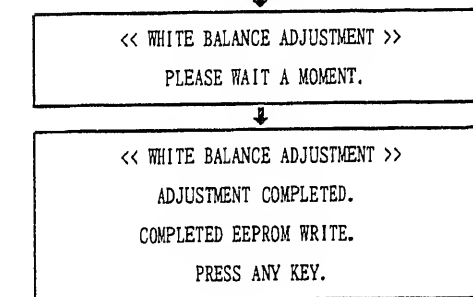
[For Normal 8]

Press **[0][A]** to input the data.

[For Hi-8]

Press **[0][A]** to input the data.

Press **ENTER** key, and the display changes as follows.



Press any key to return to ADJUSTMENT MENU.



# (5) Chroma Gain Adjustment (Figs. 2-20, 2-21)

Purpose	To set the color saturation under the reference color temperature.
Incompleted Phenomenon	•Color of the picture is denser than that of the subject. •Color of the picture is lighter than that of the subject.
Test Point	•Video Out (AV OUT)
Equipment/Jig	•Oscilloscope (Vectorscope)
Condition	•Attach a C12 filter. •Point at a color bar chart.

## PROCEDURE

### ADJUSTMENT MENU

```

*****
***** ADJUSTMENT *****
*****
[1]  AUTO IRIS CONTROL
[2]  KNEE
[3]  MATRIX
[4]  WHITE BALANCE
[5]  CHROMA GAIN
[ESC] RETURN TO MAIN MENU
Please select [1] - [5] or [ESC]

```

Press [5] key to select the CHROMA GAIN.

```

<< ADJUSTMENT OF CHROMA GAIN >>

    ROUGH ADJUSTMENT
    [U]  CHROMA GAIN UP
    [D]  CHROMA GAIN DOWN

    FINE ADJUSTMENT
    [Ctrl] + [U]  CHROMA GAIN UP
    [Ctrl] + [D]  CHROMA GAIN DOWN
    [ENTER]  SAVE & RETURN TO MENU
    [ESC]  QUIT

```

### WHEN USING AN OSCILLOSCOPE

Press the [U] and [D] keys to set the red level to around 450mVp-p.  
Press the [Ctrl] button and hold it down, then press the [U] and [D] keys so the red level is 450mV ± 20mVp-p. (Fig. 2-20)



### WHEN USING A VECTORSCOPE

Press the [U] and [D] keys to set the red vector to around 150% of the burst.  
Press the [Ctrl] button and hold it down, then press the [U] and [D] keys so the red vector is 150% ± 5%. (Fig. 2-21)

Press [ENTER] key, and the display changes as follows.

```

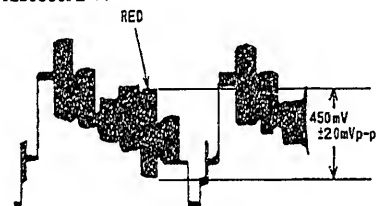
<< ADJUSTMENT OF CHROMA GAIN >>
DATA WRITING INTO EEPROM.

<< ADJUSTMENT OF CHROMA GAIN >>
ADJUSTMENT FINISHED.
PRESS ANY KEY.

```

Press any key to return to ADJUSTMENT MENU.

### Waveforms << OSCILLOSCOPE >>



(100mV/20 μs.div.)

### << VECTORSCOPE >>

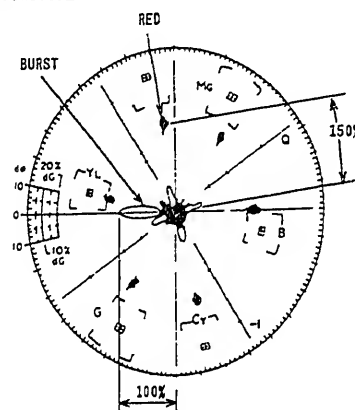


Fig. 2-21

# 7-6. Autofocus Adjustment Procedure

## ◆Before Starting Adjustment

- Be sure to perform this adjustment after replacing or initializing the lens block, parts in the VCA circuit board (EEPROM).

## PROCEDURE

- 1) Start the MAP.
- 2) Press [D] to select AUTO FOCUS. (Figs. 2-22, 2-23.)
- 3) Select the number of the required adjustment.

## NOTE

1. If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-22 (MAIN MENU).
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

### MAIN MENU

```

*****
***** MANUAL ADJUSTMENT PROGRAM *****
*****
[A]  DATA INITIALIZE
[B]  ELECTRIC VOLUME
[C]  ADJUSTMENT
[D]  AUTO FOCUS
[E]  VCR ADJUSTMENT
[F]  EIS
[G]  SPOT NOISE
[ESC] END
Please select [A] - [G] or [ESC]

```

Fig. 2-22

Press [D]

### AF ADJ. MENU

```

*****
***** AUTO FOCUS ADJUSTMENT *****
*****
[1]  ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]  ADJUSTMENT OF AF NOISE LEVEL
[ESC] RETURN TO MENU
Please select [1], [2] or [ESC]

```

Fig. 2-23

# (1) Zoom/Focus Tracking Adjustment

Purpose	•To set the out-of-focus correction level during zooming.
Incompleted Phenomenon	•Focus is lost during zooming.
Equipment/Jig	•Color Video Monitor •Backfocus Chart
Test Point	•Video Out (AV OUT)
Condition	•Point at the backfocus chart, 1500±5 mm away from the lens surface. •Light the chart with 200-400 lux.

## Caution When Adjustment

1. Measure the distance between the chart and lens surface precisely.
2. Place the chart as parallel as possible to the lens surface.
3. The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4. The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5. Do not place any obstruction between the lens and chart during adjustment.

## PROCEDURE

### AF ADJ. MENU

```

*****
***** AUTO FOCUS ADJUSTMENT *****
*****
[1]  ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]  ADJUSTMENT OF AF NOISE LEVEL
[ESC] RETURN TO MENU
Please select [1], [2] or [ESC]

```

Press [1] key to select ADJUSTMENT OF ZOOM/FOCUS TRACKING

```

<< ADJUSTMENT OF ZOOM/FOCUS TRACKING >>
0%      50%     100%

```

```

<< ADJUSTMENT OF ZOOM/FOCUS TRACKING >>
0%      50%     100%
ADJUSTMENT COMPLETED.
PRESS ANY KEY.

```

Press any key to return to AF ADJ. MENU.

## (2) AF Noise Level Adjustment

Purpose	•To set the noise level.
Incompleted Phenomenon	•It takes time until a subject is brought into focus.
Equipment/Jig	•Correct focus is not obtained. •Color Video Monitor
Test Point	•Video Out (AV OUT)
Condition	•Set the focus to AUTO. •Point at a light box without a chart inserted at a distance of up to 10cm.
Caution When Adjustment	
1. Place the light box as parallel as possible to the lens surface. 2. The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.	

### PROCEDURE

#### AF ADJ. MENU

```

*****
***** AUTO FOCUS ADJUSTMENT *****
*****
[1] ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2] ADJUSTMENT OF AF NOISE LEVEL
[ESC] RETURN TO MENU
Please select [1], [2] or [ESC]

```

Press [2] key to select ADJUSTMENT OF AF NOISE LEVEL.

```

<< ADJUSTMENT OF AF NOISE LEVEL >>
|-----|
| 0%    50%   100%

```

```

<< ADJUSTMENT OF AF NOISE LEVEL >>
|-----|
| 0%    50%   100%
ADJUSTMENT COMPLETED.
PRESS ANY KEY.

```

Press any key to return to AF ADJ. MENU.

## 7-7. Stabilizer Adjustment Procedure

### ◆Before Starting Adjustment

- Be sure to perform this adjustment after replacing or initializing the SPE circuit board and VCA circuit board (EEPROM).
- This item describes how to rewrite the stabilizer data. The average of the stabilizer data will be written.

### — PROCEDURE —

#### 1) Start the MAP.

##### NOTE

1. If [ESQ] (escape) is pressed, the computer's display returns to MAIN MENU.
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

#### 2) Press [F] to select EIS.

#### 3) Press [Y] key.

##### NOTE

1. If [N] is pressed, the computer's display returns to MAIN MENU.
2. If a key other than Y or N is pressed, "PLEASE SELECT (Y/N)?" is displayed.

#### 4) The stabilizer data is rewritten automatically.

#### 5) Press any key to return to MAIN MENU.

### MAIN MENU

```

*****
***** MANUAL ADJUSTMENT PROGRAM *****
*****
[A] DATA INITIALIZE
[B] ELECTRIC VOLUME
[C] ADJUSTMENT
[D] AUTO FOCUS
[E] VCR ADJUSTMENT
[F] EIS
[G] SPOT NOISE
[ESC] END
Please select [A] - [G] or [ESC]

```

Press [F]

```

<<DATA WRITING>>
START TO SEND DATA (Y/N)

```

Press [Y]

```

FINISHED WRITING DATA.
PRESS ANY KEY.

```

Press any key to return to MAIN MENU.

# 7-8. SPOT NOISE ADJUSTMENT PROCEDURE

## ◆Before Starting Adjustment

- The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turned on.
- Perform this adjustment only for products with which spot noise occurs.  
(However, there is no problem even if products free from spot noise are adjusted.)
- After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

## PROCEDURE 1) Start the MAP.

### NOTE

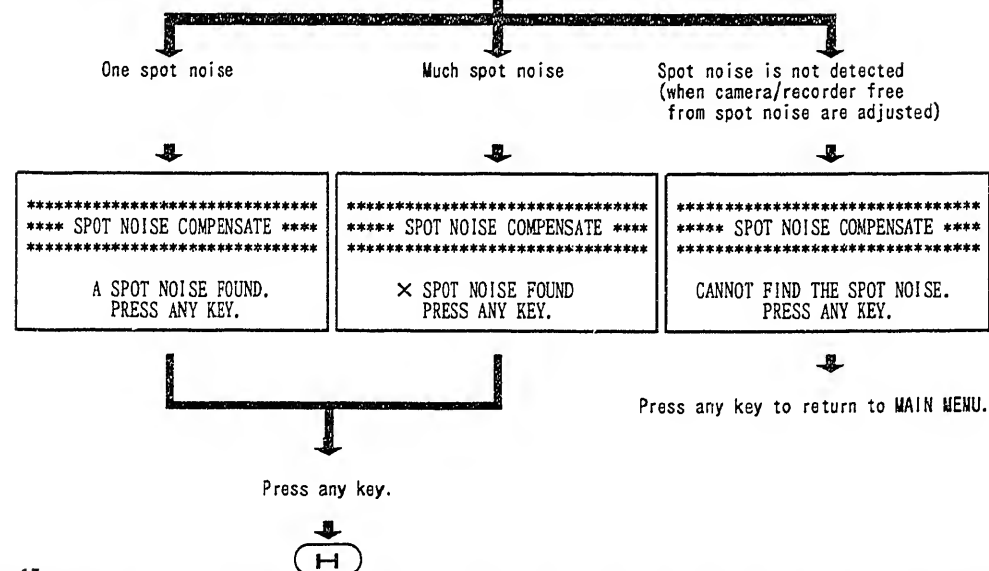
1. If **ESC** (escape) is pressed, the computer's display returns to **MAIN MENU**.
2. To complete adjustment, press the **ESC** (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

- 2) Cap the lens
- 3) Connect the color video monitor to video out.
- 4) Press **[G]** key to select **SPOT NOISE**.

### NOTE

- The adjustment procedure in this item is different depending on the amount of spot noise.

Note: The amount of spot noise is displayed in place marked **X**.

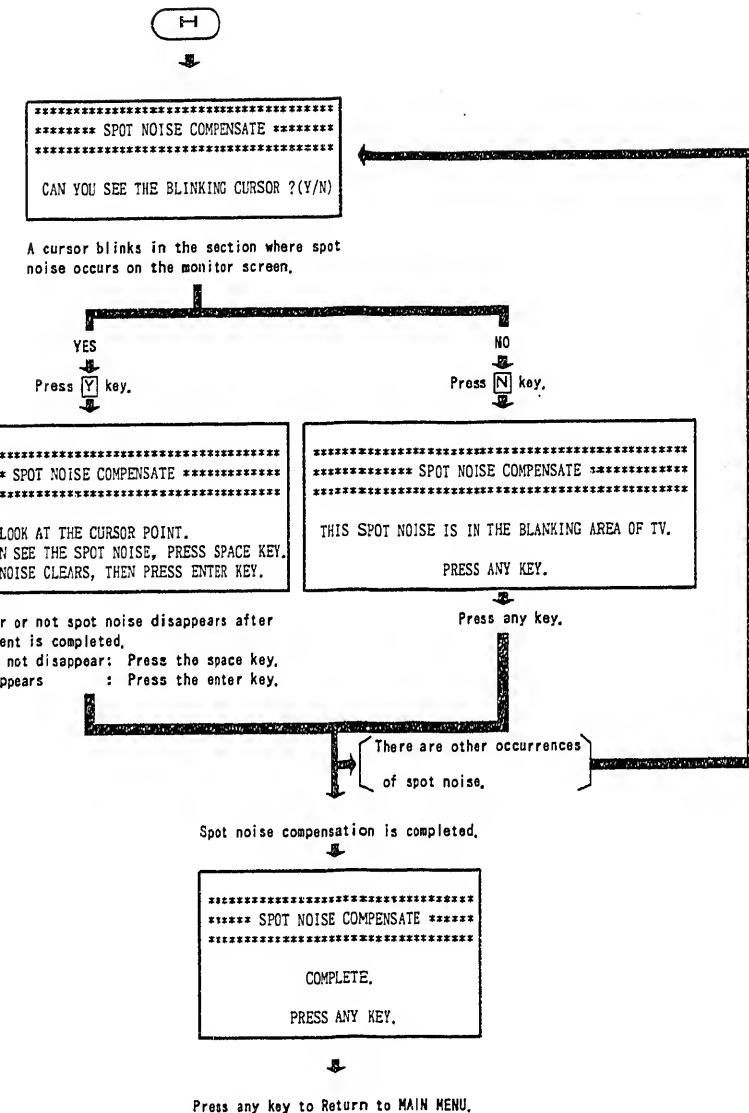


## MAIN MENU

```

*****
***** MANUAL ADJUSTMENT PROGRAM *****
*****
[A] DATA INITIALIZE
[B] ELECTRIC VOLUME
[C] ADJUSTMENT
[D] AUTO FOCUS
[E] VCR ADJUSTMENT
[F] EIS
[G] SPOT NOISE
[ESC] END
Please select [A] - [G] or [ESC]
    
```

Press **[G]**



## 8. ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT

### 8-1. CRT EVF Adjustment

#### Adjustment Parts Locations

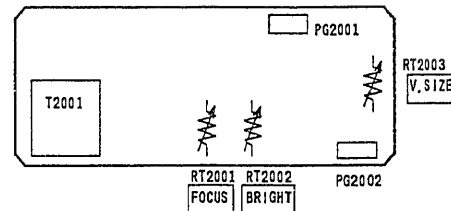
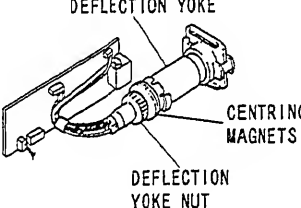
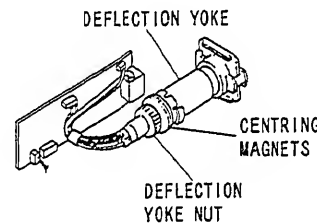


Fig. 2-24 Electronic Viewfinder (EMQ) Circuit Board (SIDE-A)

#### (1) Deflection Yoke Position, EVF Centering Adjustment

Purpose	•This adjustment procedure eliminates picture tilt in the EVF display. •This adjustment centers the image observed by the camera in the EVF display.		
Equipment/Jig	Test Points	Condition	Adjustment Points
•EVF Display		•Aim the resolution chart.	•DEFLECTION YOKE (Deflection Yoke Position) •CENTRING MAGNETS (EVF Centring)
Adjustment Procedure		Adjustment Points	
<p>&lt;Deflection Yoke Position&gt;</p> <p>1) Loosen the deflection yoke nut.</p> <p>2) Turn the deflection yoke so that the EVF picture (chart) is horizontal, matching the edges of the CRT.</p> <p>Note:(After adjustment is completed, ) (tighten the deflection yoke nut.)</p> <p>&lt;EVF Centring&gt;</p> <p>1) Remove the locking paint from the centring magnet.</p> <p>2) Adjust the centring magnets until the center of the picture viewed by the camera is positioned in the center of the EVF display.</p>			



#### (2) EVF Vertical Size Adjustment (Fig. 2-24)

Purpose	This adjustment determines the vertical size of the image appearing in the EVF display.		
Equipment/Jig	Test Points	Condition	Adjustment Points
•EVF Display		•Aim the resolution chart.	•RT2003 (V.SIZE) EMC
Adjustment Procedure			
1) RT2003: Set the top and bottom edges of the chart match the top and bottom edges of the CRT.			

#### (3) EVF Brightness Adjustment (Fig. 2-24)

Purpose	This adjustment sets the brightness of the picture in the EVF display.		
Equipment/Jig	Test Points	Condition	Adjustment Points
•EVF Display		•Aim the resolution chart.	•RT2002 (BRIGHT) EMC
Adjustment Procedure			
1) RT2002: Set to optimize the EVF picture.			

#### (4) EVF Focus Adjustment (Fig. 2-24)

Purpose	This control adjusts for optimum focus of the electronic viewfinder picture.		
Equipment/Jig	Test Points	Condition	Adjustment Points
•EVF Display		•Aim the resolution chart.	•RT2001 (FOCUS) EMC
Adjustment Procedure			
1) RT2001: Set the EVF picture is clear.			

## 8-2. LCD EVF Adjustment

### Adjustment Parts Locations

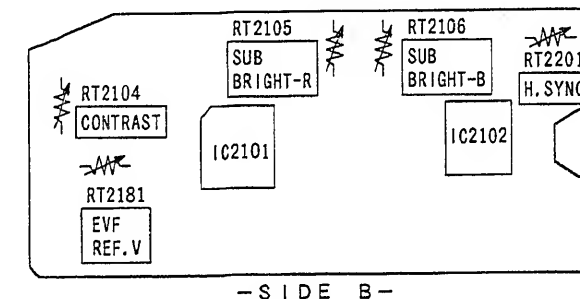
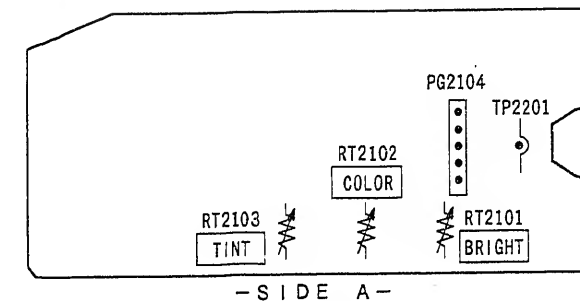


Fig. 2-25 Color EVF (CRE) Circuit Board

#### (1) Output Voltage Adjustment (Fig. 2-25)

Equipment/Jig	Test Points	Condition	Adjustment Points
•DVM	•PG2104-5	CRE	•RT2181 (EVF REF. V) CRE
Adjustment Procedure			
1) RT2181: Set the DVM reads $12.0V \pm 0.1V$ .			

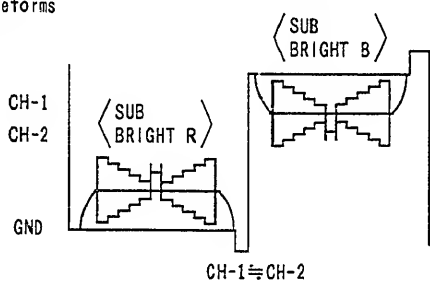
#### (2) H.Drive Frequency Adjustment (Fig. 2-25)

Equipment/Jig	Test Points	Condition	Adjustment Points
•DVM	•TP2201	CRE	•RT2201 (H. SYNC) CRE
Adjustment Procedure			
1) RT2201: Set the DVM reads $2.5V \pm 0.1V$ .			

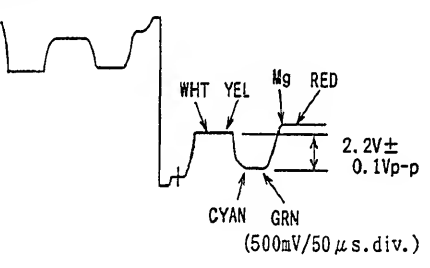
#### (3) Brightness, Contrast Adjustment (Fig. 2-25)

Equipment/Jig	Test Points	Condition	Adjustment Points
•Oscilloscope (DC mode)	•PG2104-4	•Aim at the gray scale chart	•RT2101 (BRIGHT) CRE •RT2104 (CONTRAST) CRE
Adjustment Procedure		Waveforms	
<p><b>&lt;BRIGHT&gt;</b></p> <ol style="list-style-type: none"> <li>RT2101: Set the section (A) in the waveform is <math>2.5 \pm 0.1Vp-p</math>.</li> </ol> <p><b>&lt;CONTRAST&gt;</b></p> <ol style="list-style-type: none"> <li>RT2104: Set the section (B) in the waveform is <math>4.7 \pm 0.1Vp-p</math>.</li> </ol>			

#### (4) Sub-Bright Adjustment (Fig. 2-25)

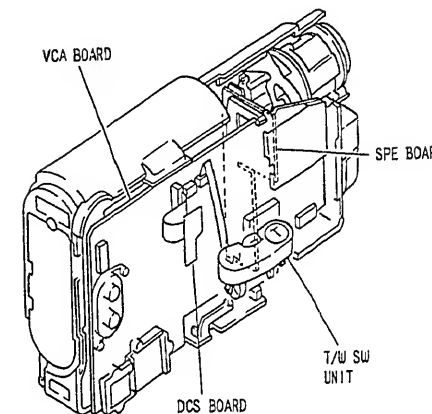
Equipment/Jig	Test Points	Condition	Adjustment Points
• Oscilloscope (DC mode)	• CH-1: PG2104-4 CRE • CH-2: PG2104-3 CRE (SUB BRIGHT B) PG2104-2 CRE (SUB BRIGHT R)	• Aim at the gray scale chart	• RT2106 (SUB BRIGHT B) CRE • RT2105 (SUB BRIGHT R) CRE
<b>Adjustment Procedure</b> <b>&lt;SUB BRIGHT B&gt;</b> 1) Match the 0V DC between CH-1 and CH-2 2) RT2106: Match the CH-1 and CH-2 waveforms. If the CH-1 and CH-2 waveforms do not match, shape each waveform. <b>&lt;SUB BRIGHT R&gt;</b> 1) Match the 0V DC between CH-1 and CH-2 2) RT2105: Match the CH-1 and CH-2 waveforms. If the CH-1 and CH-2 waveforms do not match, shape each waveform.		<b>Waveforms</b> 	

#### (5) Chroma Gain and Color Phase Adjustment (Fig. 2-25)

Equipment/Jig	Test Points	Condition	Adjustment Points
• Oscilloscope	• PG2104-2 CRE	• Aim at the color bar chart (Input the full color bar signal.)	• RT2102 (COLOR) CRE • RT2103 (TINT) CRE
<b>Adjustment Procedure</b> 1) Adjust RT2103 to minimize the fluctuations the waveform. 2) Adjust RT2102 so the difference in the level between yellow and cyan is $2.2V \pm 0.1V_{p-p}$ .		<b>Waveforms</b> 	

### 3. VCR SECTION ADJUSTMENT

#### 1. CIRCUIT BOARD LOCATIONS



#### 3. ADJUSTMENT CONDITION

- 1) Check that the camera section has been adjusted correctly before adjusting the VCR section.
- 2) Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
- 3) Use the 10:1 probe of the oscilloscope when other not specified.
- 4) When "Record mode" is specified, load a blank tape and set the 8mm video camera/recorder to the record mode by the following procedure.
  - ① Set the CAMERA/OFF/VCR switch to the CAMERA position.
  - ② Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).
- 5) Before adjusting the resistors marked with asterisks (\*) in the following text, remove the corresponding laser trimming resistors to replace them with the specified semi-variable resistors.
- 6) Before unsoldering laser trimming resistors be sure to confirm each adjustment value. Remove only the resistors used in the adjustment items that should be adjusted.
- 7) Earth of test equipment: Pre-Amp Shield (GND).

#### 4. PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

- CAMERA/OFF/VCR switch ..... "VCR" position
- TITLE ..... Not Display mode

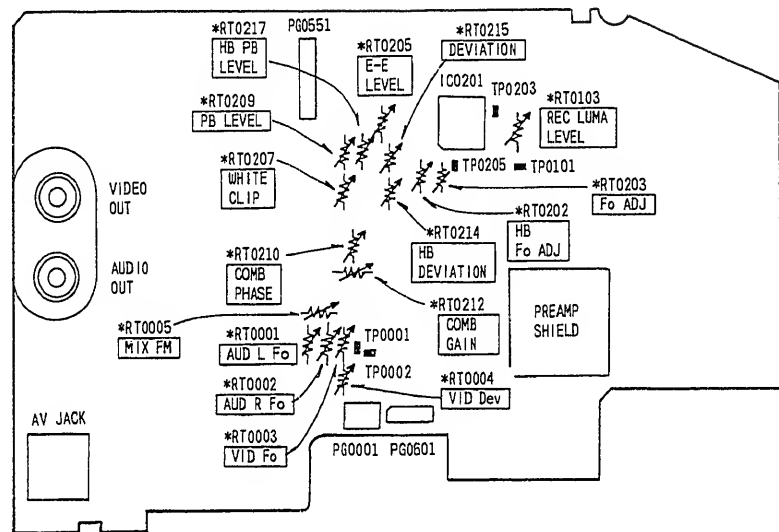
Fig. 3-1

#### 2. TEST EQUIPMENT AND ALIGNMENT TAPES NECESSARY FOR ADJUSTMENT

- 1) Test Equipment
  - Oscilloscope (dual trace)
  - Digital Voltmeter (DVM)
  - Frequency Counter
  - Millivoltmeter
  - Color Video Monitor
  - Color Bar Generator
- 2) Alignment Tape, etc.
  - Adjustment Floppy Disk
  - Personal Computer
  - Personal Computer 9-pin or 25-pin (RS232C) Cable
  - DSP-R Jig
  - DSP AV Output Cable
  - Alignment Tape (20HSC-3)
  - Blank Tape
  - ATF-R Jig
  - DC Power Supply (DC 0-7V/3A)
  - DC Power Supply (DC 5V/1A)



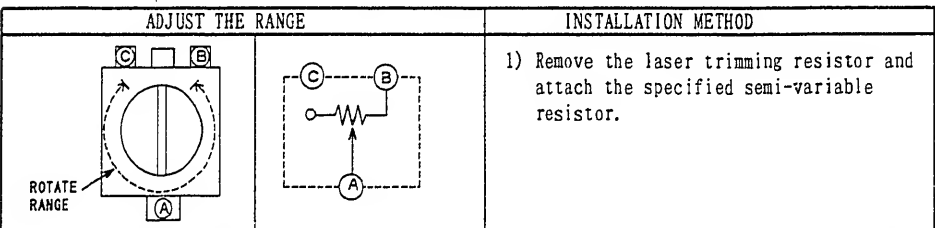
5. ADJUSTMENT COMPONENTS LOCATIONS



NOTE  
• Variable resistors marked "\*" are laser trimming resistor.  
• Test point (TP) are not actually provided on the circuit board.

Fig. 3-2 Main (VCA) Circuit Board (SIDE A)  
Table 3-1 SEMI-VARIABLE RESISTORS TABLE

ADJUST POINT	SEMI-VARIABLE RESISTOR (Ω)	CIRCUIT BOARD	NAME OF ADJUSTMENT
RT0103	470	VCA	REC LUMA LEVEL
RT0202	22K		HB Fo ADJ [For Hi-8]
RT0203	22K		Fo ADJ
RT0205	10K		E-E LEVEL
RT0207	22K		WHITE CLIP
RT0209	22K		PB LEVEL
RT0210	470		COMB PHASE
RT0212	2.2K		COMB GAIN
RT0214	10K		HB DEVIATION [For Hi-8]
RT0215	10K		DEVIATION
RT0217	22K		HB PB LEVEL [For Hi-8]
RT0001	2.2K		AUD L fo [For Type521]
RT0002	2.2K		AUD R fo [For Type521]
RT0003	10K		VID fo [For Type521]
RT0004	10K		VID Dev [For Type521]
RT0005	2.2K		MIX FM [For Type521]



6. CHECK AFTER REPLACING MAJOR COMPONENTS IN THE VCR SECTION

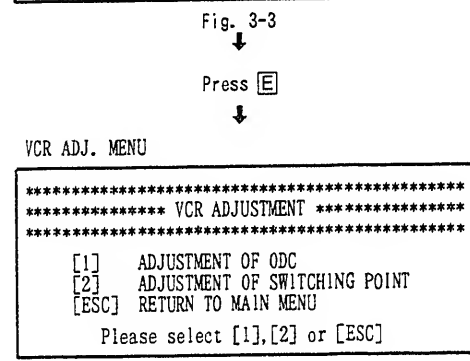
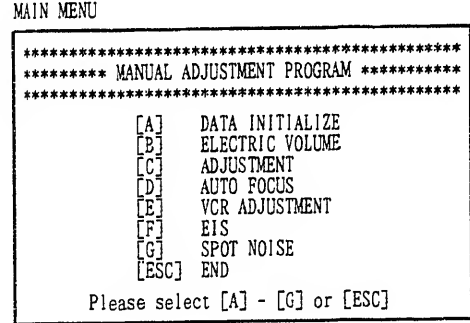
After replacing major components, perform checks, referring to the table below. The following table shows the minimum adjustments required after major components are placed. The table below may not apply when several components are replaced, depending on the symptom of the defect.  
Note: After replacing the parts, check each adjustment. If you find the items necessary to be adjusted, remove the corresponding laser trimming resistors and replace them with variable resistors for adjustment.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS					
		VCA BOARD	CYLINDER	IC901	IC201	IC202	IC0001
SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT							
(1)	Power Shut Off Level Adjustment	④		②			
(2)	Head Switching Point Adjustment	④	①	②			
LUMINANCE/CHROMA CIRCUIT ADJUSTMENT							
(1)	Comb Filter Adjustment				③	④	
(2)	E-E Video Signal Level Adjustment				③		
(3)	White Clip Adjustment				③		
(4)	Carrier Frequency Adjustment				③		
(5)	Deviation Adjustment				③		
(6)	Record Luminance level Adjustment				③		
(7)	Playback Luminance Level Adjustment				③		
AV TRANSMITTER CIRCUIT ADJUSTMENT							
(1)	FM Carrier Adjustment				③		⑤

7. SYSTEM CONTROL/SERVO CIRCUIT ADJUSTMENT

- ◆ Before Starting Adjustment
- System control adjustment also needs a personal computer. Connect the camera/recorder, jigs, power supply, etc. in the same way as in Digital Adjustment.
  - Be sure to perform this adjustment after replacing or initializing the EEP ROM and VCA circuit board (EEPROM).
  - When an error message appears during adjustment, refer to "4. Error Messages".
  - If **ESC** (escape) is pressed, the computer's display returns to Fig. 3-3 (MAIN MENU).
  - To complete adjustment, press the **ESC** (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

- PROCEDURE
- 1) Start the MAP.
  - 2) Press **[E]** to select VCR ADJUSTMENT. (Figs. 3-3, 3-4)
  - 3) Select the number of the required adjustment.



# (1) Power Shut Off Level (ODC: Over Discharge) Adjustment

<b>Purpose</b> • To set the minimum voltage required to operate the camera/recorder. <b>Incompleted Phenomenon</b> • The usable time of the battery becomes short. • The camera/recorder doesn't operate normally.			
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
•DVM •DC Power Supply (0~7V) •Blank Tape	•PG0551-8 (GND) VCA •PG0551-1 VCA •PG0551-8 (GND) VCA •PG0551-1 VCA	•Load the blank tape •Supply power (7.0±0.5V) to PG0551-1	
<b>Adjustment Procedure</b> VCR ADJ. MENU <pre> ***** ***** VCR ADJUSTMENT ***** ***** [1] ADJUSTMENT OF ODC [2] ADJUSTMENT OF SWITCHING POINT [ESC] RETURN TO MAIN MENU Please select [1],[2] or [ESC]  Press [1] key to select the ADJUSTMENT OF ODC.  &lt;&lt; SET UP OF ODC ADJUSTMENT STARTED &gt;&gt; PRESET POSITION OF 'CAMERA/OFF/VCR' SWITCH 'VCR' POSITION SET POWER SOURCE AT 5.65 (+/- 0.05) V. START ADJUSTING. PRESS ANY KEY. </pre>			
<pre> 1 ↓ Set the voltage of PG0551-1 to 5.65V±0.05V ↓ Press any key, and the display changes as follows.  &lt;&lt; SETUP OF ODC ADJUSTMENT COMPLETED &gt;&gt; &lt;&lt; ODC ADJUSTMENT STARTED &gt;&gt; &lt;&lt; ODC ADJUSTMENT COMPLETED &gt;&gt; PRESS ANY KEY.  Press any key to return to VCR ADJ. MENU. </pre>			

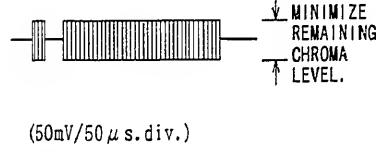
# (2) Head Switching Point Adjustment

Note: Be sure to perform this adjustment after replacing the cylinder assembly and VCA circuit board.

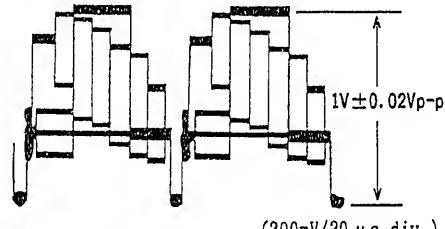
<b>Purpose</b> • To set the switching point of the video heads during playback. <b>Incompleted Phenomenon</b> • Vertical jitter occurs. • Switching noise appears across the bottom of the monitor screen.			
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
•Alignment Tape		•Playback the alignment tape.	
<b>Adjustment Procedure</b> VCR ADJ. MENU <pre> ***** ***** VCR ADJUSTMENT ***** ***** [1] ADJUSTMENT OF ODC [2] ADJUSTMENT OF SWITCHING POINT [ESC] RETURN TO MAIN MENU Please select [1],[2] or [ESC]  Press [2] key to select the ADJUSTMENT OF SWITCHING POINT.  &lt;&lt; ADJUSTMENT OF SWITCHING POINT &gt;&gt; PRESET POSITIONS OF 'CAMERA/OFF/VCR' SWITCH. 'VCR' POSITION. PRESS ANY KEY. </pre>			
<pre> 2 ↓ SET UP OF SW POINT ADJUSTMENT STARTED. SET UP OF SW POINT ADJUSTMENT COMPLETED. SW POINT ADJUSTMENT STARTED.  ↓  SW POINT ADJUSTMENT DATA CHECKING. FINISHED WRITING DATA. ADJUSTMENT FINISHED. PRESS ANY KEY.  Turn the Power off.  Press any key to return to VCR ADJ. MENU. </pre>			

# 8. LUMINANCE/CHROMA CIRCUIT ADJUSTMENT

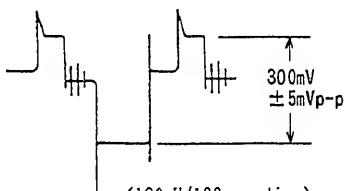
## (1) Comb Filter Adjustment (Fig. 3-2)

<b>Purpose</b> • To set the characteristic of the comb filter. <b>Incompleted Phenomenon</b> • Jamming occurs at the edges. • The chroma S/N deteriorates.			
Equipment/JIG	Test Points Connection Points	Condition	Adjustment Points
•Oscilloscope •Color Bar Generator •Blank Tape (Nor-8)	•TP0203 VCA •Video IN (AV IN)	•Input the color bar signal. •STOP mode	•RT0212 (COMB GAIN) VCA •RT0210 (COMB PHASE) VCA
<b>Adjustment Procedure</b> 1) Load the blank tape for normal 8. 2) RT0212, RT0210: Set the chroma components to minimize the residual. <Settings of oscilloscope> •Trigger with video signal.		<b>Waveforms</b> 	

## (2) E-E Video Signal Level Adjustment (Fig. 3-2)

<b>Purpose</b> • To set the video output level in the E-E mode. <b>Incompleted Phenomenon</b> • The picture becomes dark or whitish in the E-E mode.			
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
•Oscilloscope •Color Bar Generator •Blank Tape (Nor-8)	•Video Out (AV OUT) •Video IN (AV IN)	•Input the color bar signal. •Stop mode	•RT0205 (E-E LEVEL) VCA
<b>Adjustment Procedure</b> 1) Load the blank tape for normal 8. 2) RT0205: Set the video output level to 1V±0.02Vp-p.		<b>Waveforms</b> 	

## (3) White Clip Adjustment (Fig. 3-2)

<b>Purpose</b> • To set the white clip level. <b>Incompleted Phenomenon</b> • No color appears in the highly bright subject.			
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
•Oscilloscope •Color Bar Generator •Blank Tape (Nor-8)	•TP0205 VCA •Video IN (AV IN)	•Input the color bar signal. •Stop mode	•RT0207 (WHITE CLIP) VCA
<b>Adjustment Procedure</b> 1) Load the blank tape for normal 8. 2) RT0207: Set the white clip level to 300mV±5mVp-p. <Settings of oscilloscope> •Trigger with video signal.		<b>Waveforms</b> 	

## (4) Carrier Frequency Adjustment (Fig. 3-2)

Purpose	To set the modulation frequency at the sync tip of the FM modulator to the specified value.		
Incompleted Phenomenon	Black and white are inverted in the picture.		
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
• Oscilloscope	• TP0101 VCA	• Input the white (100%) signal. • Stop mode.	• RT0203 (Fo ADJ) VCA
• Color Bar Generator	• Video In (AV IN)		• RT0202 (HB Fo ADJ) VCA
• Blank Tapes (Nor-8, Hi-8)			
Adjustment Procedure		Waveforms	
1) Load the blank tape for normal 8. 2) RT0203: Set the period of the widest pulse is $235\text{ns} \pm 3\text{ns}$ . [Hi-8 Model Only] 3) Load the blank tape for Hi-8. 4) RT0202: Set the period of the widest pulse is $175\text{ns} \pm 3\text{ns}$ .  <Setting of oscilloscope> • Trigger the oscilloscope			

## (5) Deviation Adjustment (Fig. 3-2)

Purpose	To set the modulation frequency at the white peak of the FM modulator to the specified value.		
Incompleted Phenomenon	The picture becomes dark or whitish during recording and playback.		
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
• Oscilloscope	• TP0101 VCA	• Input the white (100%) signal. • Stop mode.	• RT0215 (DEVIATION) VCA
• Color Bar Generator	• Video In (AV IN)		• RT0214 (HB DEVIATION) VCA
• Blank Tapes (Nor8, Hi-8)			
Adjustment Procedure		Waveforms	
1) Load the blank tape for normal 8. 2) RT0215: Set the period of the narrowest pulse is $184\text{ns} \pm 2\text{ns}$ . [Hi-8 Model Only] 3) Load the blank tape for Hi-8. 4) RT0214: Set the period of the narrowest pulse is $130\text{ns} \pm 2\text{ns}$ .  <Setting of oscilloscope> • Trigger the oscilloscope			

## (6) Record Luminance Level Adjustment (Fig. 3-2)

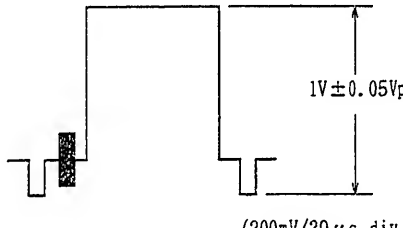
Purpose	To set the luminance signal to the specified value.		
Incompleted Phenomenon	• The luminance S/Ns deteriorate. • Cross-beats appear on the monitor screen. • Black and white are inverted in picture.		
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
• Oscilloscope	• CH-1: Video Out (AV OUT) • CH-2: TP0101 (REC Y) VCA	• Input the color bar signal.	• RT0103 (REC LUMA LEVEL) VCA
• Color Bar Generator	• Video In (AV IN)		
• ATF-R Jig (SW3:ON)	• PG0601 VCA		
• Blank Tape (Nor-8, Hi-8)		Waveforms	
Adjustment Procedure		[Normal 8 Model Only] 1) Load the blank tape for Normal 8. [Hi-8 Model Only] 1) Load the blank tape for Hi-8. 2) Connect the ATF-R jig to PG0601 and turn the power off. 3) Set the camera/recorder to the test mode by the following procedure. [Procedure to set to the test mode] ① Remove the power supply from the camera/recorder. ② Set the CAMERA/OFF/VCR switch to CAMERA position. ③ Check that the ATF-R jig (SW1:OFF, SW3:ON) is connected and then press the playback button and hold it, then supply the power again to the camera/recorder. 4) Set the unit to the loading state. [Normal 8 Model Only] 5) RT0103: Set the sync tip section in record luminance signal is $390\text{mV} \pm 5\text{mVp-p}$ . [Hi-8 Model Only] 5) RT0103: Set the sync tip section in record luminance signal is $520\text{mV} \pm 5\text{mVp-p}$ .  <Setting of oscilloscope> • Trigger with video signal.	
		<p>① (Nor-8: <math>390\text{mV} \pm 5\text{mVp-p}</math>)          (Hi-8: <math>520\text{mV} \pm 5\text{mVp-p}</math>)</p>	

## (7) Playback Luminance Level Adjustment (Fig. 3-2)

Note: Perform this adjustment after completing the record luminance level adjustment.

Purpose	To set the luminance playback level to the specified value.		
Incompleted Phenomenon	The picture becomes dark or whitish during playback.		
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
• Oscilloscope	• Video Out (AV OUT)	• Record color bar signal and play it back with same VCR.	• RT0209 (PB LEVEL) VCA
• Blank Tapes (Nor-8, Hi-8)			• RT0217 (HB PB LEVEL) VCA
• Color Bar Generator			
Adjustment Procedure		Waveforms	
1) Playback the Nor-8 tape. 2) RT0209: Set the playback luminance level to $1\text{V} \pm 0.02\text{Vp-p}$ . [Hi-8 Model Only] 1) Playback the Hi-8 tape. 2) RT0217: Set the playback luminance level to $1\text{V} \pm 0.02\text{Vp-p}$ .			

9. AV TRANSMITTER CIRCUIT ADJUSTMENT [ For Type521 ]  
(1) FM Carrier ADJUSTMENT

Purpose	<ul style="list-style-type: none"> <li>To set the frequencies of the audio and video FM signals in the specified values.</li> <li>To set the deviation of the video FM signal to the specified value.</li> </ul>		
Incompleted Phenomenon	<ul style="list-style-type: none"> <li>The picture is distorted.</li> <li>No sound is output or the level is low.</li> <li>The sound balance between the left and right channels deteriorates.</li> </ul>		
Equipment/Jig	Test Points Connection Points	Condition	Adjustment Points
•Frequency Counter	•TP0002 (AUD L fo) VCA •TP0002 (AUD R fo) VCA •TP0001 (VID fo) VCA	•Input the white (100%) signal. •VCR MODE (STOP)	•RT0001 (AUD L fo) VCA •RT0002 (AUD R fo) VCA •RT0003 (VID fo) VCA •RT0004 (VID Dev) VCA •RT0005 (MIX FM) VCA
•DVM	•PG0001-2 (MIX FM) VCA		
•Oscilloscope	•VIDEO OUT (VID Dev)		
•Color Bar Generator	•VIDEO IN (AV IN)		
Adjustment Procedure		Waveforms	
<p>&lt;AUD L fo&gt; 1) RT0001: The frequency counter reads <math>2.28\text{MHz} \pm 10\text{kHz}</math> at TP0002.</p> <p>&lt;AUD R fo&gt; 1) RT0002: The frequency counter reads <math>2.81\text{MHz} \pm 10\text{kHz}</math> at TP0002.</p> <p>&lt;VID fo&gt; 1) RT0003: The frequency caunter reads <math>11.5\text{MHz} \pm 50\text{kHz}</math> at TP0001.</p> <p>&lt;VID Dev&gt; 1) RT0004: Set the video output level to <math>1\text{V} \pm 0.05\text{Vp-p}</math>.</p> <p>&lt;MIX FM&gt; 1) RT0005: The DVM reads <math>980\text{mV} \pm 10\text{mV}</math> at PG0001-2.</p> <p>&lt;Setting of oscilloscope&gt; •Trigger the oscilloscope internally.</p>			

4. ERROR MESSAGES

1. Camera Electric Volume and Digital Adjustments

Error Message	Countermeasure
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	<ul style="list-style-type: none"> <li>Check whether or not power is supplied.</li> <li>Check the values of the iris drive circuit.</li> <li>Defective soldering, damage to pattern, etc. in the above circuit</li> <li>Check the iris block and replace it if necessary.</li> </ul>
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	<ul style="list-style-type: none"> <li>Check the values in the hall amp circuit.</li> <li>Defective soldering, damage to pattern, etc. in the above circuit.</li> </ul>
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY	<ul style="list-style-type: none"> <li>Check the values in the hall amp circuit.</li> <li>Defective soldering, damage to pattern, etc. in the above circuit.</li> </ul>
ERROR OCCURRED ON da0 and dal ADJUSTMENT PRESS ANY KEY	<ul style="list-style-type: none"> <li>Check the values in the hall amp circuit and its peripheral circuits.</li> <li>Defective soldering, damage to pattern, etc. in the above circuits.</li> </ul>
FILE NOT FOUND !!!! PRESS ANY KEY	<ul style="list-style-type: none"> <li>The adjustment program (file) cannot be found.</li> <li>Check the adjustment floppy disk and replace it if necessary.</li> </ul>
FILE OPEN ERROR !!!! PRESS ANY KEY	<ul style="list-style-type: none"> <li>The adjustment program (file) does not start.</li> <li>Check the adjustment floppy disk and replace it if necessary.</li> </ul>
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	<ul style="list-style-type: none"> <li>Check the values of the iris drive circuit.</li> <li>Defective soldering, damage to pattern, etc. in the above circuit.</li> </ul>
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	<ul style="list-style-type: none"> <li>Supply power again and re-adjust.</li> <li>Check the values in the hall amp circuit.</li> <li>Defective soldering, damage to pattern, etc. in the above circuit.</li> </ul>
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	<ul style="list-style-type: none"> <li>Supply power again and re-adjust.</li> </ul>
TOO BRIGHT PRESS ANY KEY	<ul style="list-style-type: none"> <li>The subject is too bright.</li> <li>Move the camera further away from the light box.</li> </ul>
TOO DARK PRESS ANY KEY	<ul style="list-style-type: none"> <li>The subject is too dark.</li> <li>Check the light box.</li> <li>Move the camera closer to the light box.</li> </ul>
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	<ul style="list-style-type: none"> <li>Supply power again and re-adjust.</li> <li>The subject is too dark.</li> <li>Check the light box.</li> <li>Move the camera closer to the light box.</li> <li>Check the values in the hall amp circuit.</li> <li>Defective soldering, damage to pattern, etc. in the above circuit.</li> </ul>

Error Message	Countermeasure
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	<ul style="list-style-type: none"> <li>• The subject is too bright.</li> <li>• Move the camera further away from the light box.</li> </ul>
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	<ul style="list-style-type: none"> <li>• The subject is too bright or too dark.</li> <li>• Check the light box.</li> <li>• Move the camera closer to or away from the light box.</li> <li>• Supply power again and re-adjust.</li> </ul>

## 2. Autofocus Adjustment

Error Message	Countermeasure
TIME OUT ERROR ON FOCUS	<ul style="list-style-type: none"> <li>• Check the conditions of subject.</li> <li>• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective.</li> <li>• Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.</li> </ul>
TIME OUT ERROR ON ZOOM	<ul style="list-style-type: none"> <li>• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective.</li> <li>• Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.</li> </ul>
TIME OUT ERROR ON AF STEP	<ul style="list-style-type: none"> <li>• Check the conditions of subject.</li> <li>• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective.</li> <li>• Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.</li> </ul>
AF LIMIT OVER	<ul style="list-style-type: none"> <li>• Check the conditions of subject.</li> <li>• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective.</li> <li>• Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.</li> </ul>
AF ERROR	<ul style="list-style-type: none"> <li>• If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective.</li> <li>• Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.</li> </ul>
TOO DARK	<ul style="list-style-type: none"> <li>• Insufficient lighting. Check the subject.</li> </ul>

## 3. Spot Noise Adjustment

Error Message	Countermeasure
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	<ul style="list-style-type: none"> <li>• Spot noise compensation is inhibited by the data in the EEPROM</li> <li>• Turn the power on again.</li> <li>• Data in the EEPROM is defective. (Initialize it.)</li> <li>• Check the EEPROM, and if necessary, replace it.</li> </ul>
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	<ul style="list-style-type: none"> <li>• Turn the power on again.</li> <li>• Data in the EEPROM is defective. (Initialize it.)</li> <li>• Check the EEPROM, and if necessary, replace it.</li> </ul>

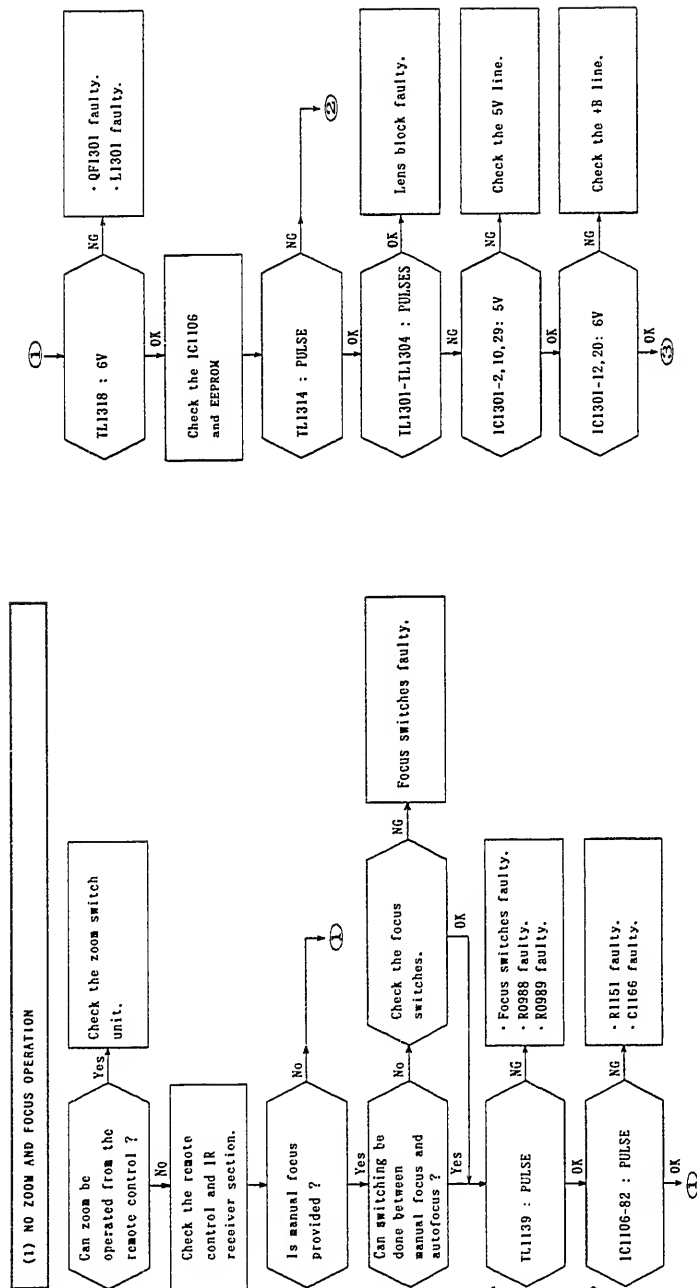
Error Message	Countermeasure
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	<ul style="list-style-type: none"> <li>• The amount of spot noise that can be compensated reaches the limit.</li> <li>• Turn the power on again.</li> <li>• Check the CCD image sensor, and if necessary, replace it.</li> </ul>

## 4. VCR Adjustment

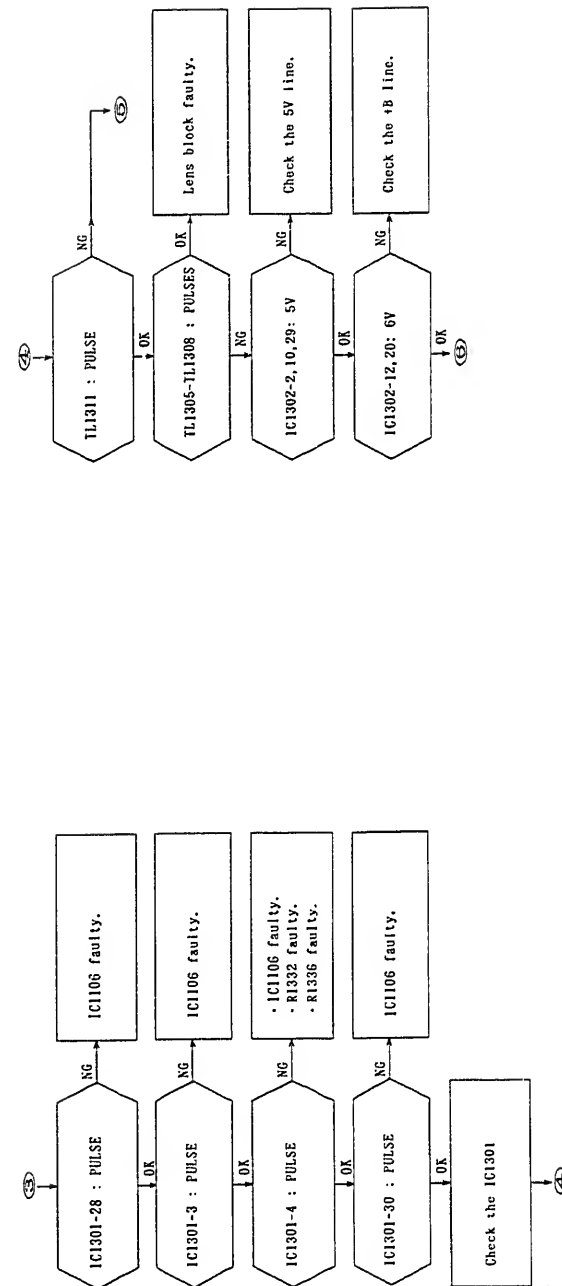
Error Message	Countermeasure
ERROR : SWP_TEST>DAT FILE NOT FOUND !	<ul style="list-style-type: none"> <li>• The adjustment program cannot be found.</li> <li>• Check the adjustment floppy disk and replace it if necessary.</li> </ul>
ERROR : INVALID MODEL PRESS ANY KEY	<ul style="list-style-type: none"> <li>• A wrong model has been selected.</li> <li>• The adjustment program cannot be found.</li> <li>• Check the adjustment floppy disk and replace it if necessary.</li> </ul>
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	<ul style="list-style-type: none"> <li>• A wrong model has been selected.</li> <li>• A product that needs analog adjustment is connected.</li> </ul>
ADJUSTMENT INCOMPLETED PRESS ANY KEY	<ul style="list-style-type: none"> <li>• The value set by adjustment defective.</li> <li>• Re-adjust.</li> <li>• Check cylinder.</li> <li>• Check the alignment tape.</li> <li>• Check whether or not the usual operation is done correctly</li> </ul>
RETRY ADJUSTING. PRESS ANY KEY	<ul style="list-style-type: none"> <li>• Supply power again and re-adjust.</li> </ul>
CAMERA IS NOT READY	<ul style="list-style-type: none"> <li>• Check whether or not power is supplied.</li> </ul>
ERROR OCCURRED CAN'T PLAY BACK PRESS ANY KEY	<ul style="list-style-type: none"> <li>• No playback video.</li> <li>• Check the playback signal.</li> </ul>
ERROR OCCURRED NO V.SYNC FOUND PRESS ANY KEY	<ul style="list-style-type: none"> <li>• Vertical sync loss.</li> <li>• Check the vertical sync signal.</li> </ul>
INVALID MODEL PRESS ANY KEY	<ul style="list-style-type: none"> <li>• A wrong model has been selected.</li> <li>• The adjustment program cannot be found.</li> <li>• Check the adjustment floppy disk and replace it if necessary.</li> </ul>
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	<ul style="list-style-type: none"> <li>• No video recording.</li> <li>• Check the recording signal.</li> </ul>

## 5. TROUBLESHOOTING OF AUTOFOCUS

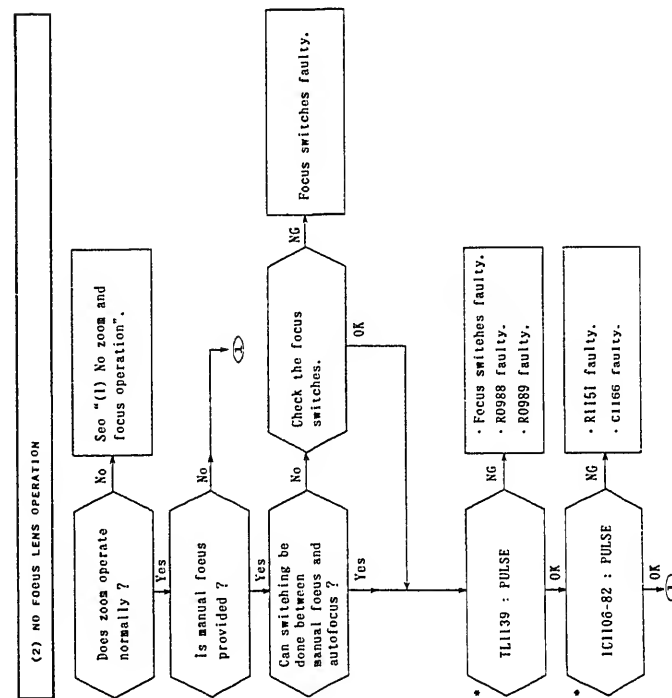
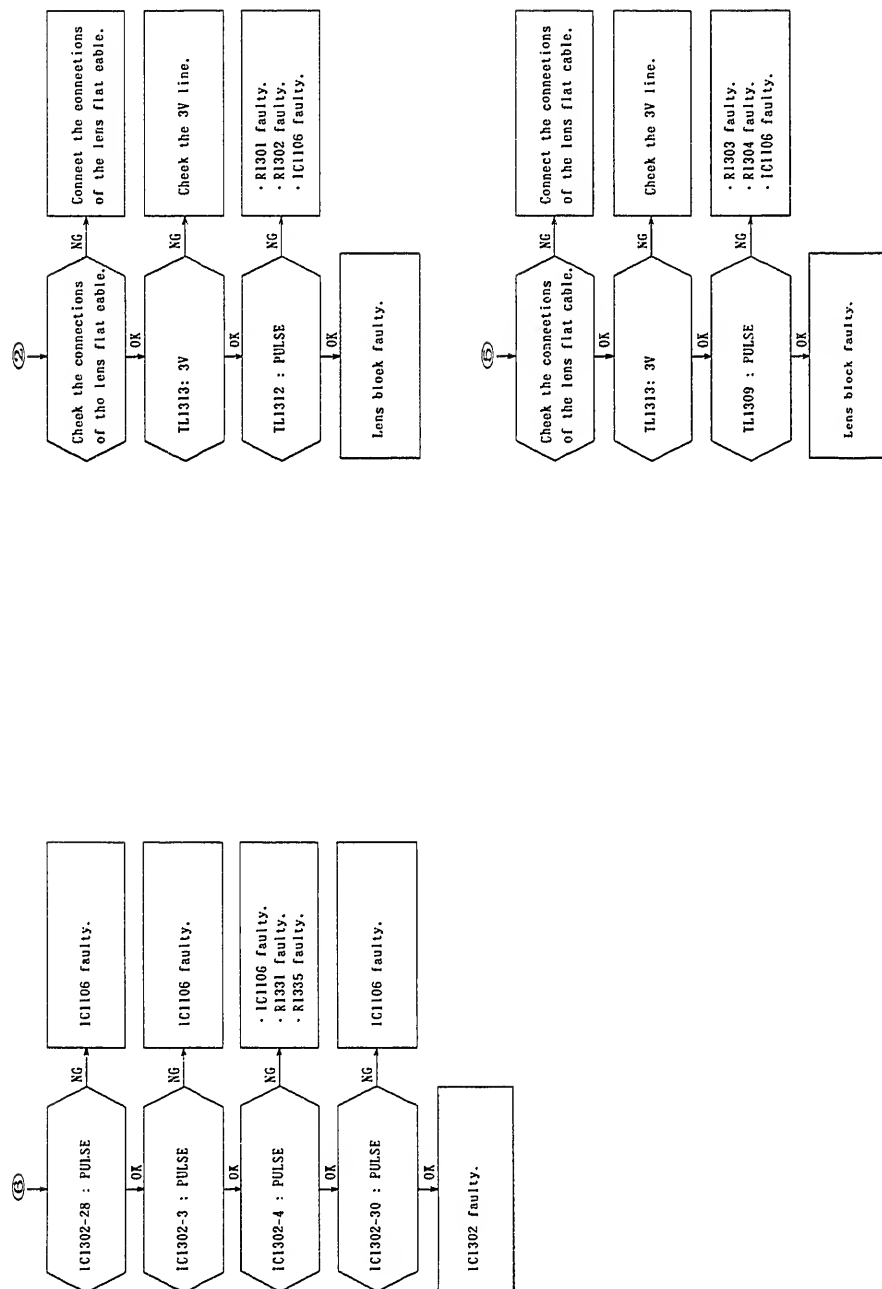
### 1. Autofocus



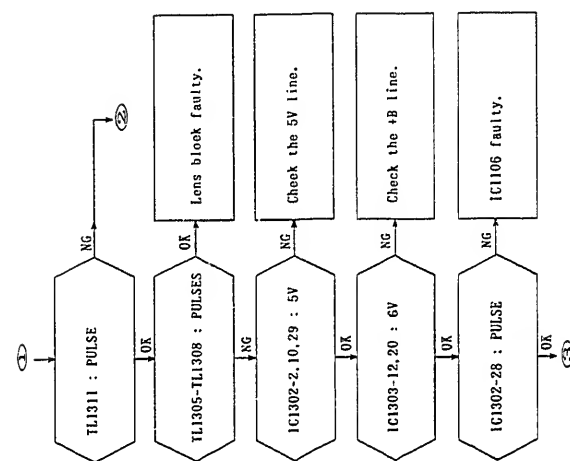
Note: Check the items marked \* by pressing the manual focus FAR and NEAR switches alternately.

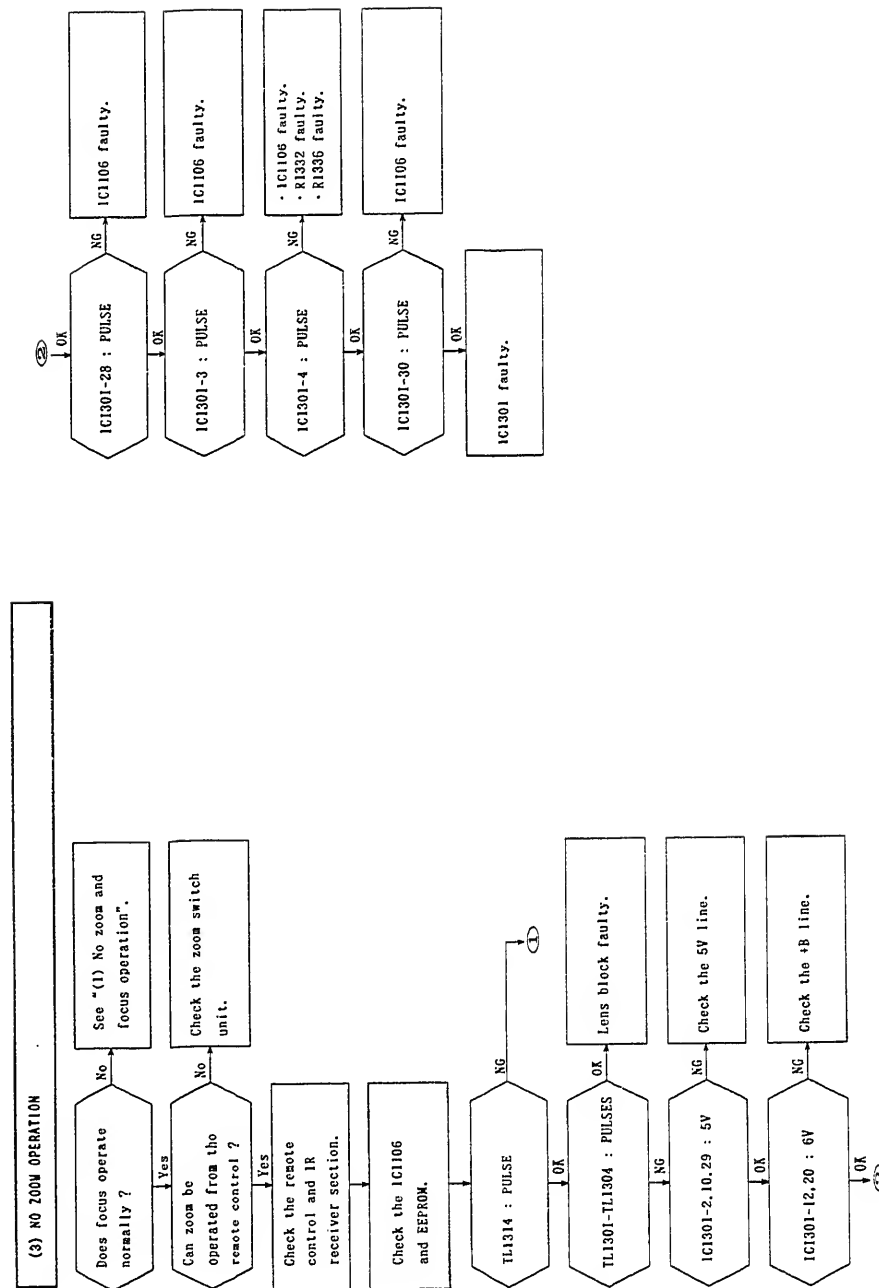
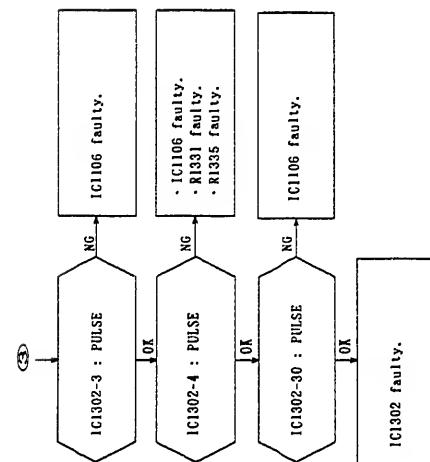
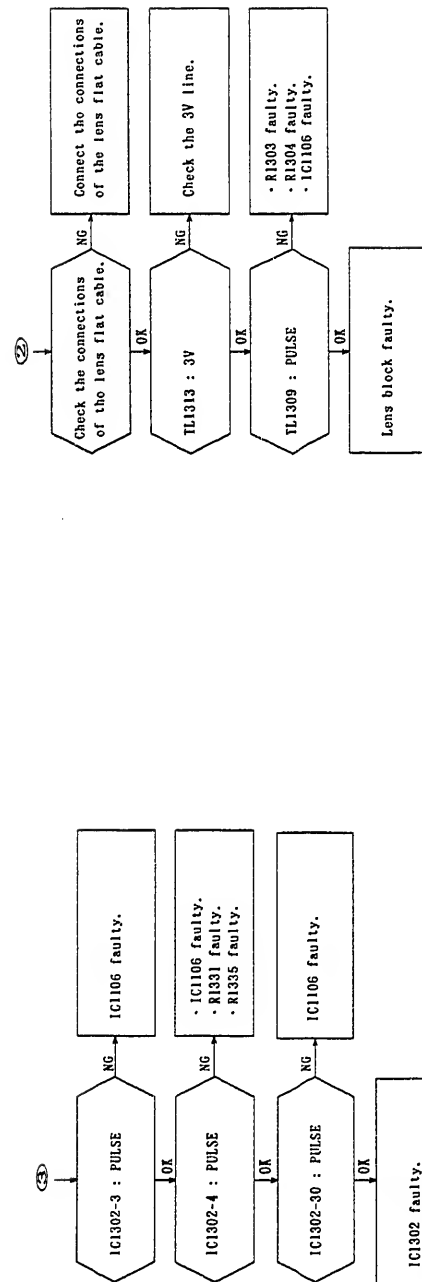


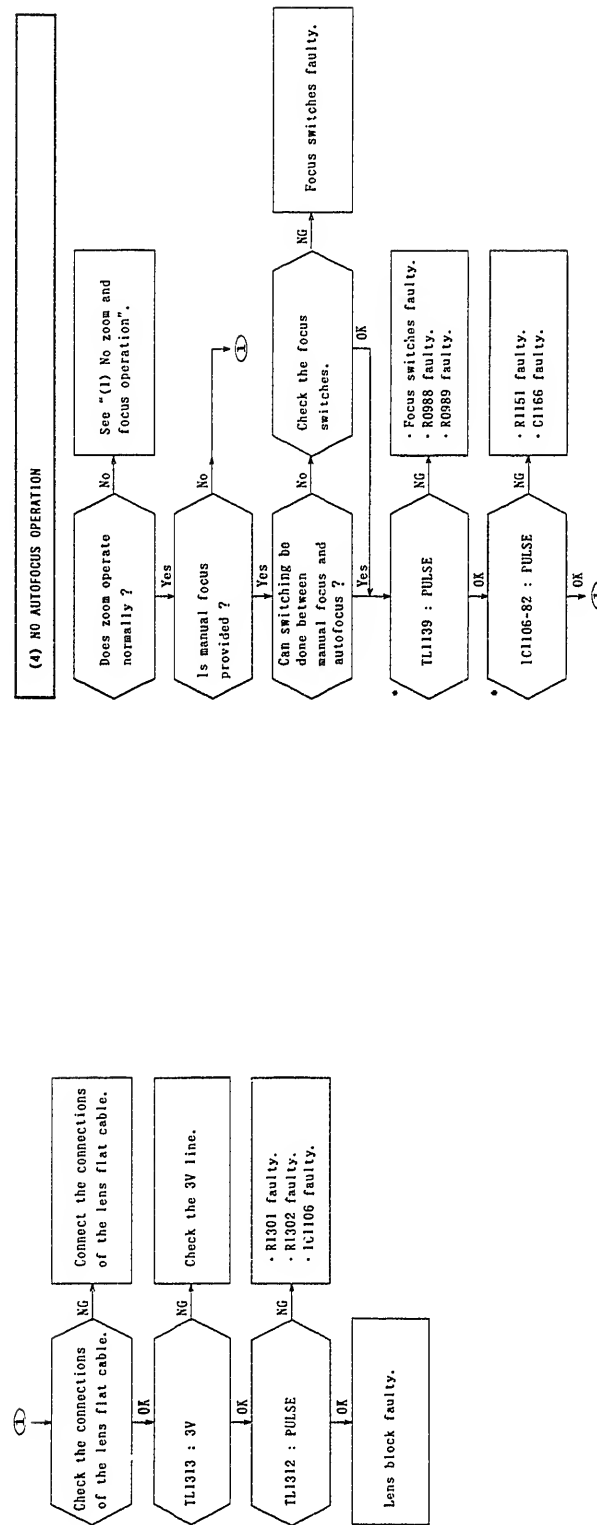




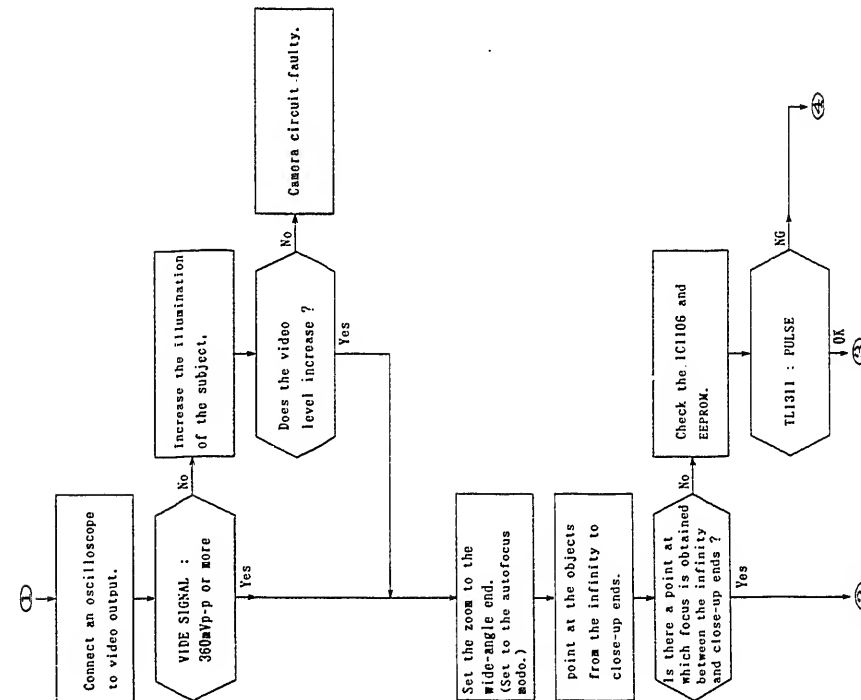
Note: Check the items marked \* by pressing the manual focus FAR and NEAR switches alternately.



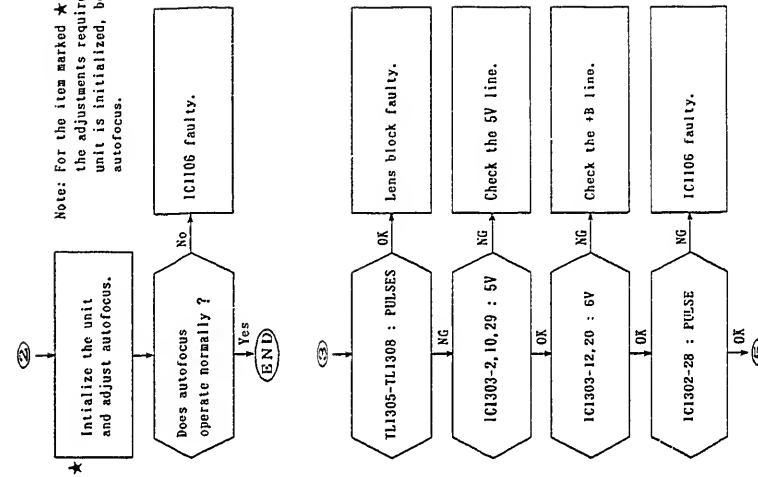


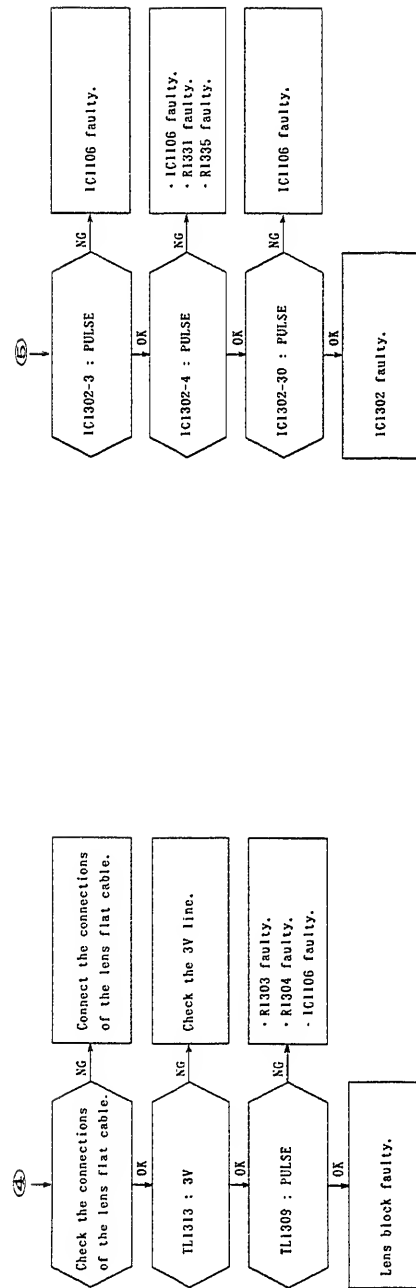


Note: Check the items marked \* by pressing the manual focus PAN and NEAR switches alternately.

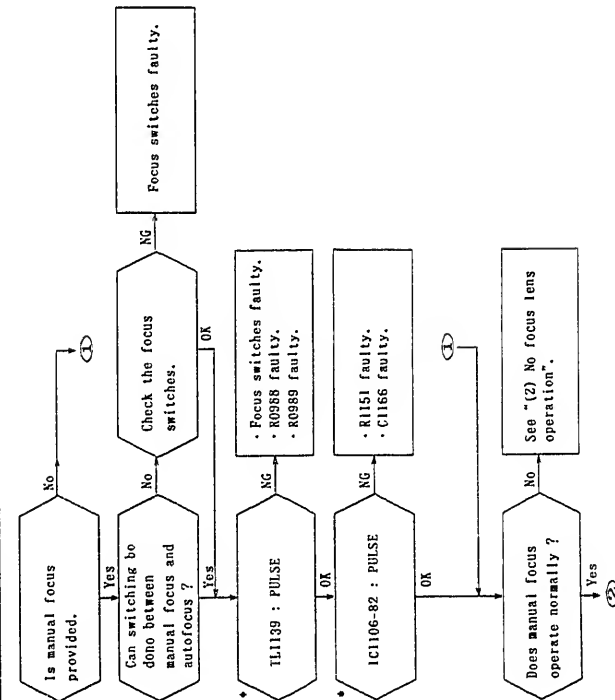


Note: For the item marked \*, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

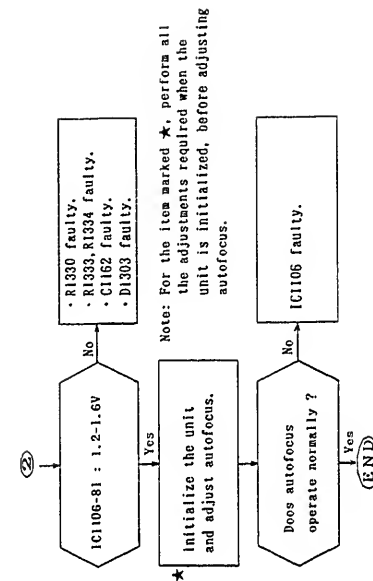




(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED.



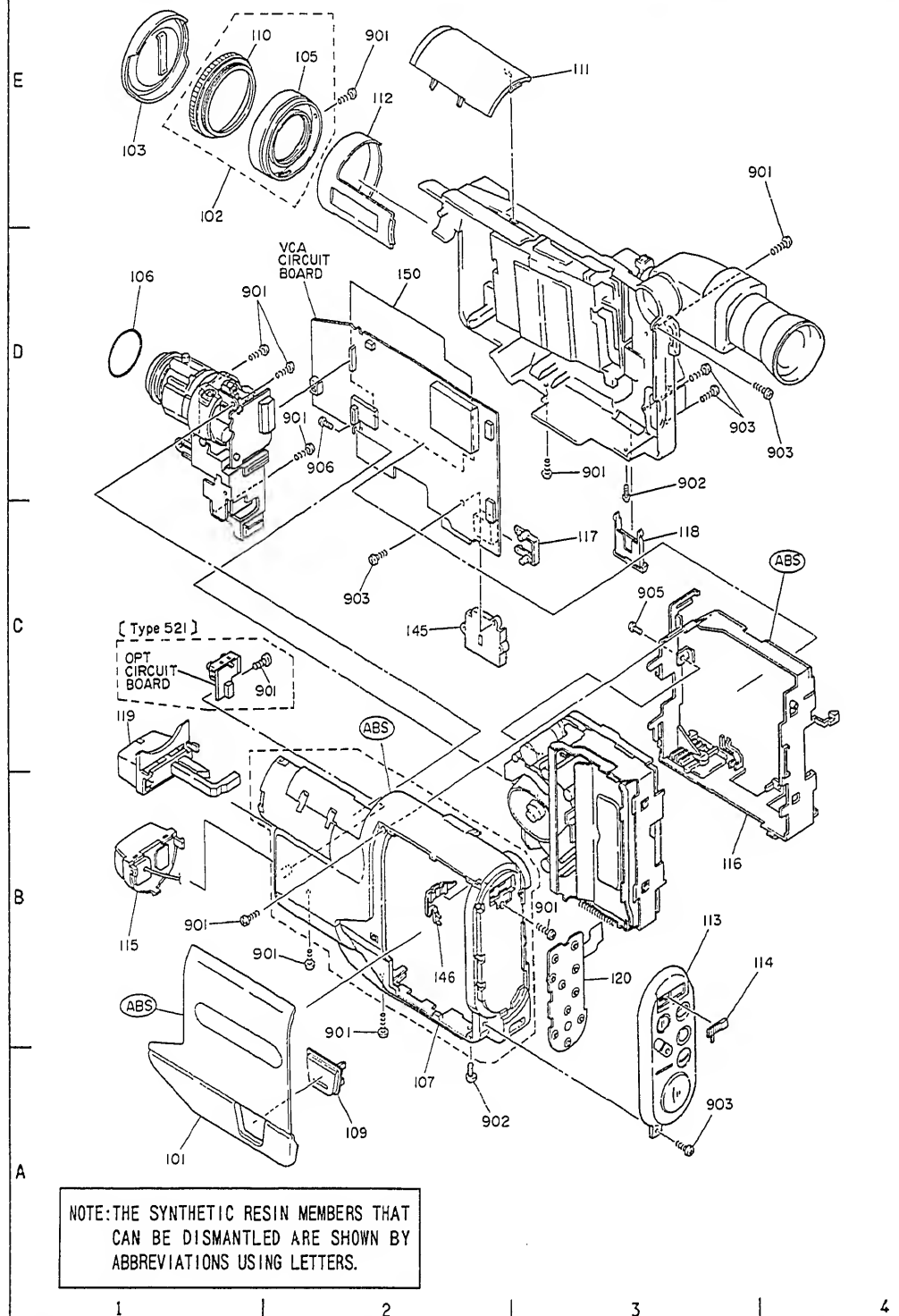
Note: Check the items marked \* by pressing the manual focus FAR and NEAR switches alternately.



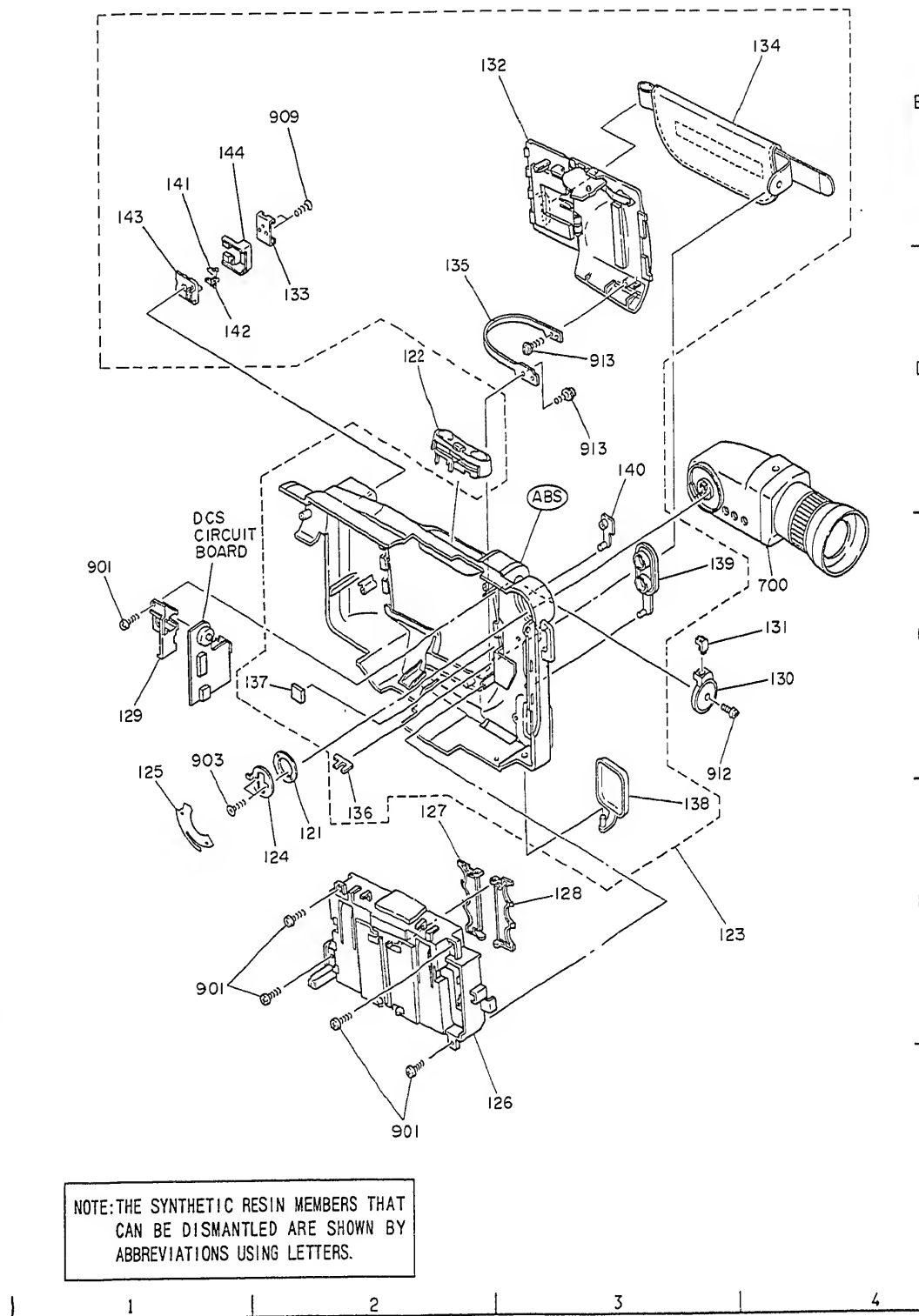
Note: For the item marked \*, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

<b>CHAPTER 4</b>	<b>EXPLODED VIEWS</b>
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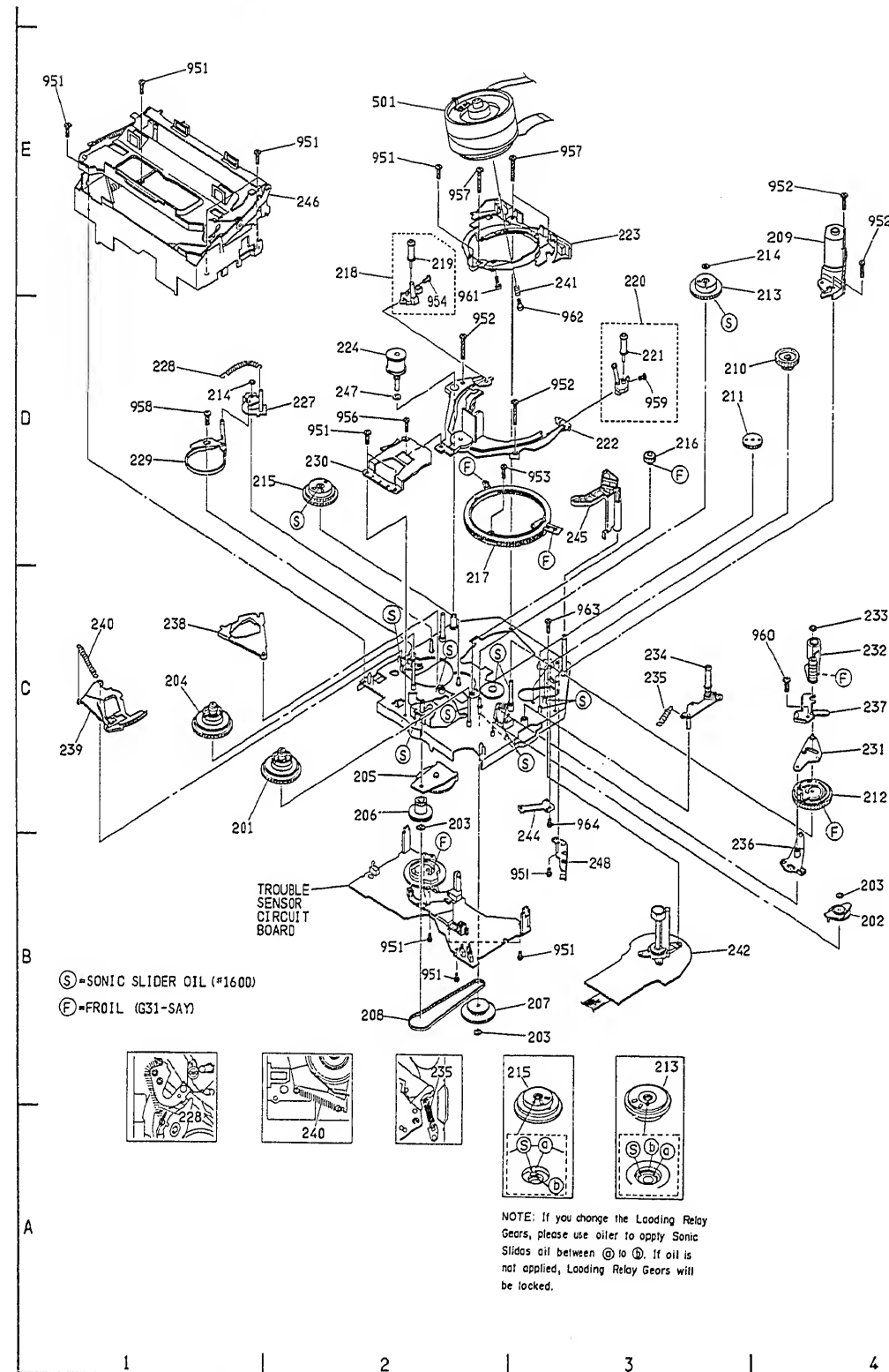
## 1. CABINET SECTION (I)



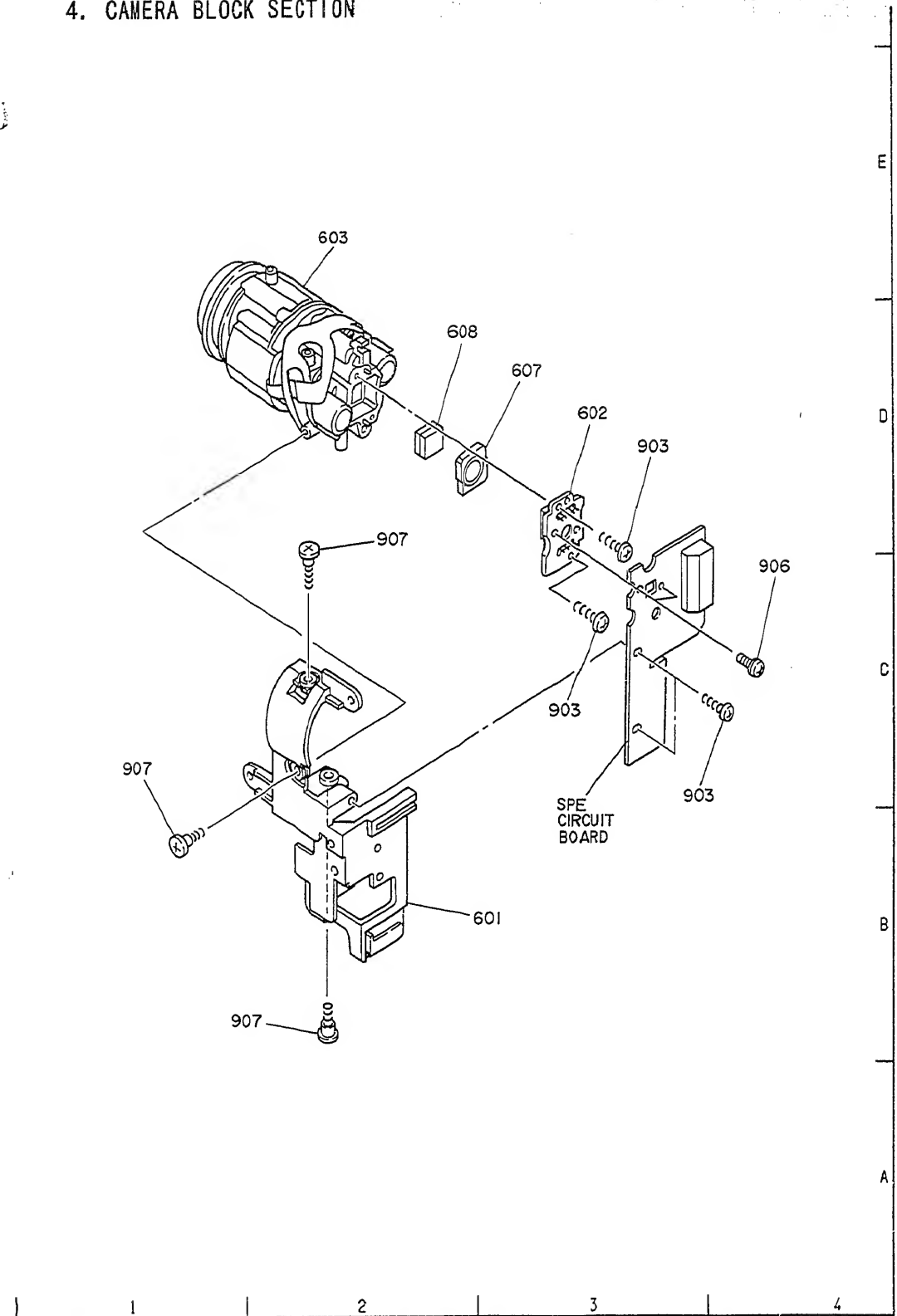
## 2. CABINET SECTION (I)



### 3. CHASSIS SECTION

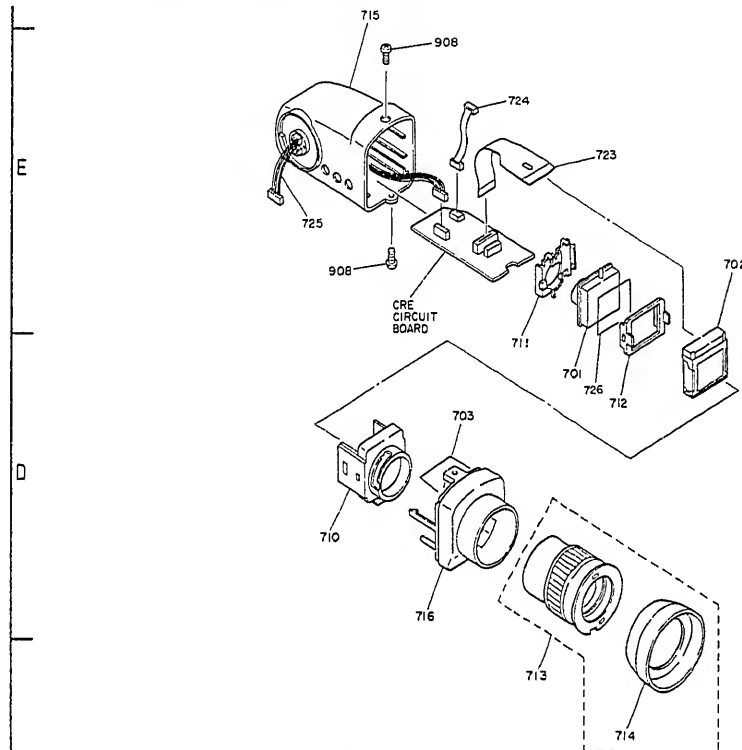


#### 4. CAMERA BLOCK SECTION

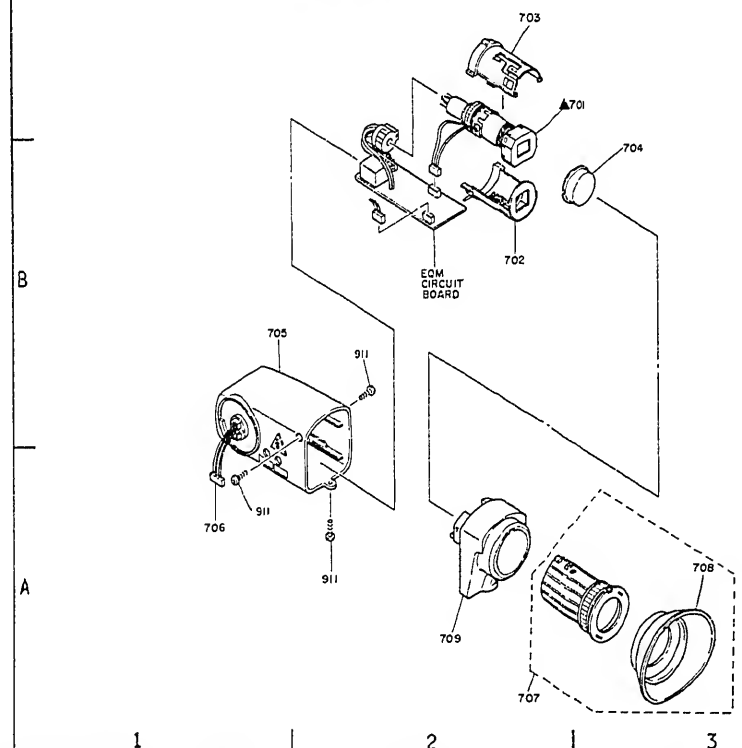




## 5. ELECTRONIC VIEWFINDER(LCD EVF) SECTION



## 6. ELECTRONIC VIEWFINDER(CRT EVF) SECTION



## CHAPTER 5

## REPLACEMENT PARTS LIST




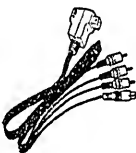




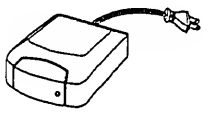
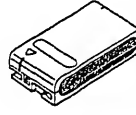
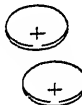
Note: This replacement parts list applies to the following model.  
Applicable model: VM-E520A/E521A(C)

### 1. MECHANICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
MECHANISM SECTION			216	6406131	GEAR
101	0013913	LID, CASSETTE (TYPE521)	217	4588464	RING, LOADING
101	0013914	LID, CASSETTE (TYPE520)	218	4589354	BAS, GUIDE ROLLER (1)
102	0X10823	RING, LENS	219	KX10171	GUIDE ROLLER
103	4798701	CAP, FOOD	220	4589366	BASE, GUIDE ROLLER (0)
105	0X10833	RING, LENS	221	4588908	ROLLER, GU10E (TYPE520)
106	NX11242	RING	221	KX11161	GUIDE ROLLER (TYPE521)
107	0013442	CASE, SIDE (L)	222	4587796	PLATE
109	PC11052	BUTTON, LID	223	KX10534	BASE, CYLINDER
110	0X10177	HOOD, LENS	224	6406156	ROLLER, IMPEDANCE
111	0011734	COVER, TOP	227	4589012	ARM, TENSION
112	0011723	COVER, LENS	228	6554231	SPRING
113	0011861	COVER, SWITCH	229	4588553	BAND, TENSION
114	PC11061	KNOB, EJECT	230	6408832	COVER, IDLER
115	GH10181	MICROPHONE	231	NA10601	PLATE
116	NT10281	FRAME, MECHANISM	232	4588294	ARM, PRESSURE ROLLER
117	NJ10411	HOLDER	233	7787571	WASHER
118	0X10813	CASE, BATTERY	234	4588702	ARM
119	0011701	WINDOW, IR (TYPE521)	235	6554201	SPRING
119	0013121	WINDOW, IR	236	KX10731	LEVER
120	FH10192	SWITCH ASSY	237	4588532	SPRING
121	4899872	SPRING	238	4588429	PLATE
122	5604851	SWITCH, T/W	239	4588353	BRAKE
123	0011627	CASE, SIDE (R)	240	6554221	SPRING
124	4826123	STOPPER	241	6554214	SPRING
125	4345032	SHEET, EVF	242	GP10191	MOTOR, CAPSTAN
126	0011683	CASE, BATTERY	244	5794021	BRUSH
127	NJ10471	HOLDER, BATTERY (R)	245	4588995	COVER
128	NJ10401	HOLDER, BATTERY (L)	246	KX10761	CASSETTE HOLDER ASSY
129	NJ10421	HOLDER, JACK	247	7789314	WASHER
130	PC11081	BUTTON, POWER	248	4827262	BRACKET
131	4752651	KNOB, LOCK	501	HX10251	CYLINDER ASSY (CY-53CN)
132	0011971	CAP, BATTERY	601	NT10302	FRAME, LENS
133	0X11041	SHOE	602	UE11256	CCD IMAGE SENSOR ASSY
134	PV10171	STRAP, HAND	603	KQ10433	LENS ASSY
135	NX11531	HINGE	607	NX11251	RUBBER
136	WN10831	SHEET	608	DT10141	CRYSTAL
137	WU10651	CUSHION	700	UX10461	EVF ASSY
138	0011651	COVER, TERMINAL	701	CS10321	MODULE HTS9554
139	0011661	COVER, JACK	702	OB10161	LCD
140	0011641	COVER, DC	703	WN11221	SPACER
141	KL10491	TERMINAL (L)	710	QD10584	HOLDER, LCO
142	KL10501	TERMINAL (R)	711	QD10574	COVER LIGHT
143	NJ10541	HOLDER, TERMINAL	712	QD10612	PIECE
144	0X11051	COVER, TERMINAL	713	4717041	LENS, EVF (TYPE520)
145	NX11261	HOLDER, BATTERY	713	4717043	CASE, ADJUST (TYPE521)
146	NJ10431	HOLDER, EJECT	714	4798771	CAP, EYE (TYPE520)
150	0L13002	SHEET, BATTERY	714	0X11981	CAP, EYE (TYPE521)
201	6404062	REEL DISK, TAKE-UP	715	Q011787	CASE, EVF
202	6406114	GEAR	716	QD12172	CASE, EVF
203	7787733	WASHER	723	J010211	FLEXIBLE CONNECTOR
204	6404073	REEL DISK, SUPPLY	724	5846771	CONNECTOR
205	6401644	GEAR, IDLER	725	5844972	CONNECTOR
206	6406211	GEAR	726	MU10711	SHEET
207	6406034	GEAR, PULLEY	901	7775946	SCREW (2X6)
208	6358471	BELT	902	7775963	SCREW (2X3)
209	KX10622	LOADING MOTOR BLOCK	903	7775945	SCREW (2X5)
210	6376312	GEAR, DRIVE	905	7773891	SCREW
211	6406082	GEAR	906	8650103	SCREW (2X3)
212	6406242	GEAR	907	MJ10221	SCREW
213	6405834	GEAR (R)	908	8700968	SCREW (1.7X3.0)
214	7787731	WASHER	909	8639106	SCREW (2X6)
215	6405824	GEAR (L)	912	8700970	SCREW (1.7X4.0)
			913	MJ10311	SCREW (M2X4.5)
			951	8712024	PAN HEAD SCREW-1.4MMX3MM

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
952	8700272	SCREW (1.7X5)	ACCESSORIES SECTION		
953	7775921	SCREW (1.4X2)	△802	TS11742	AC ADAPTOR (VM-AC85A)
954	8714004	SCREW (1.4X2.5)	803	EV10411	CORD, PLUG
956	8619065	SCREW (1.7X6)	804	EW10941	CORD
957	8700976	SCREW (1.7X8.0)	805	5616582	REMOTE HAND SET (VM-RM70A) (TYPE521)
958	7770791	SCREW	805	HL10421	REMOTE HAND SET (VT-RME55A) (TYPE520)
959	8712904	SCREW (1.4X2.0)	807	TS11791	SHOULDER STRAP
960	8619063	SCREW (1.7X3)	808	4798221	STRING, CAP
961	8711105	SCREW (2X5)	△809	TS12312	INFRARED UNIT (VM-IR20A) (TYPE521)
962	7785886	SCREW			
963	8700264	1.7X2 SCREW			
964	8741103	SCREW (2X3)			

## ACCESSORIES

△AC ADAPTOR/CHARGER	DC CORD	AV OUTPUT CORD (For Normal 8 MODEL)	AV OUTPUT CORD (For Hi-8 MODEL)
			
[VM-AC85A]			
REMOTE CONTROLLER	REMOTE CONTROLLER	SHOULDER STRAP	STRING
			
[VM-RME55A]	[VM-RM70A]		
AV OPTICAL WIRELESS RECEIVER (For Type 521)	△	△	
			WARNING: Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.
[VM-IR20A]			

## 2. ELECTRICAL PARTS LIST

Note: This replacement parts list applies to the following model.  
Applicable model: VM-E520A/E521A(C)

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
VCR & CAMERA SECTION			C0150	0893114	CERAMIC CHIP 12PF+-5% 50V
C0001	0806157	ELECTROLYTIC 22UF 6.3V (521)	C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0002	0893225	CERAMIC CHIP 0.1UF+80-20% 16V (521)	C0152	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0003	0893239	CERAMIC CHIP 0.01UF+80-20% 50V (521)	C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0004	0806153	ELECTROLYTIC 10UF 16V (521)	C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0005	0893062	CERAMIC CHIP 1UF+80-20% 16V (521)	C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0006	0806153	ELECTROLYTIC 10UF 16V (521)	C0156	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0007	0893166	CERAMIC CHIP 220PF+-5% 50V (521)	C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0008	0893004	CERAMIC CHIP 0.047UF+-10% 16V (521)	C0163	0806168	ELECTROLYTIC 47UF 6.3V
C0009	0806133	ELECTROLYTIC 10UF 6.3V (521)	C0164	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0010	0893062	CERAMIC CHIP 1UF+80-20% 16V (521)	C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0012	0893062	CERAMIC CHIP 1UF+80-20% 16V (521)	C0168	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0013	0893166	CERAMIC CHIP 220PF+-5% 50V (521)	C0169	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0014	0893004	CERAMIC CHIP 0.047UF+-10% 16V (521)	C0170	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0015	0806133	ELECTROLYTIC 10UF 6.3V (521)	C0171	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0016	0893062	CERAMIC CHIP 1UF+80-20% 16V (521)	C0172	0806153	ELECTROLYTIC 10UF 16V
C0017	0893225	CERAMIC CHIP 0.1UF+80-20% 16V (521)	C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0018	0893062	CERAMIC CHIP 1UF+80-20% 16V (521)	C0174	0806124	ELECTROLYTIC 10UF 4V
C0019	0202305	CERAMIC CHIP 510PF+-5% 50V (521)	C0175	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0020	0806133	ELECTROLYTIC 10UF 6.3V (521)	C0176	0893117	CERAMIC CHIP 22PF+-5% 50V
C0022	0893225	CERAMIC CHIP 0.1UF+80-20% 16V (521)	C0177	0893152	CERAMIC CHIP 18PF+-5% 50V
C0023	0893202	CERAMIC CHIP 330PF+-10% 50V (521)	C0178	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0024	0893208	CERAMIC CHIP 1000PF+-10% 50V (521)	C0179	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0025	0893208	CERAMIC CHIP 1000PF+-10% 50V (521)	C0180	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0026	0893208	CERAMIC CHIP 1000PF+-10% 50V (521)	C0181	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0028	0893239	CERAMIC CHIP 0.01UF+80-20% 50V (521)	C0182	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0029	0806157	ELECTROLYTIC 22UF 6.3V (521)	C0183	0806153	ELECTROLYTIC 10UF 16V
C0051	0893055	CERAMIC CHIP 0.1UF+80-20% 16V (521)	C0184	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C0185	0806023	ELECTROLYTIC 3.3UF 4V
C0102	0806174	ELECTROLYTIC 100UF 6.3V	C0187	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0188	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0189	0893161	CERAMIC CHIP 82PF+-5% 50V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0190	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0191	0893124	CHIP CERAMIC 68PF+-5% 50V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0205	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0206	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893008	CERAMIC CHIP 0.1UF +-10% 16V	C0207	0893109	CERAMIC CHIP 7.0PF 50V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0208	0893127	CERAMIC CHIP 120PF+-5% 50V
C0113	0806001	ELECTROLYTIC 0.1UF 35V	C0213	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0114	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0214	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0115	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0215	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0216	0806174	ELECTROLYTIC 100UF 6.3V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0217	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0218	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V	C0219	0806024	ELECTROLYTIC 3.3UF 6.3V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V	C0224	0893127	CERAMIC CHIP 120PF+-5% 50V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V	C0226	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0131	0806168	ELECTROLYTIC 47UF 6.3V	C0228	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0132	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0229	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0134	0893123	CERAMIC CHIP 56PF+-5% 50V	C0230	0893122	CERAMIC CHIP 47PF+-5% 50V
C0136	0893118	CERAMIC CHIP 27PF+-5% 50V	C0231	0806168	ELECTROLYTIC 47UF 6.3V
C0137	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0235	0893124	CHIP CERAMIC 68PF+-5% 50V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V	C0237	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V	C0238	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0143	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0240	0893114	CERAMIC CHIP 12PF+-5% 50V
C0144	0893214	CERAMIC CHIP 2700PF+-10% 50V	C0242	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0146	0893115	CERAMIC CHIP 15PF+-5% 50V	C0244	0806027	ELECTROLYTIC 4.7UF 4V
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0245	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0149	0893117	CERAMIC CHIP 22PF+-5% 50V	C0246	0806124	ELECTROLYTIC 10UF 4V
			C0247	0806027	ELECTROLYTIC 4.7UF 4V
			C0248	0893115	CERAMIC CHIP 15PF+-5% 50V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C0249	0893119	CERAMIC CHIP 33PF+-5% 50V	C0443	0893239	CERAMIC CHIP 0.01UF+-20% 50V
C0250	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C0445	0893062	CERAMIC CHIP 1UF+-20% 16V
C0251	0806027	ELECTROLYTIC 4.7UF 4V	C0457L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0252	0806149	ELECTROLYTIC 4.7UF 25V	C0458	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0459	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0254	0806153	ELECTROLYTIC 10UF 16V	C0460	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0255	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C0461	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0256	0893162	CERAMIC CHIP 100PF+-5% 50V	C0501	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0257	0806174	ELECTROLYTIC 100UF 6.3V	C0502	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0258	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0503	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0259	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C0551	0893155	CERAMIC CHIP 33PF+-5% 50V
C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0552	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0261	0893117	CERAMIC CHIP 22PF+-5% 50V	C0553	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0263	0893011	CERAMIC CHIP 0.15UF+-10% 16V	C0555	0209942	CERAMIC CHIP 100PF+-5% 50V
C0264	0893169	CERAMIC CHIP 390PF+-5% 50V	C0556	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0265	0893153	CERAMIC CHIP 22PF+-5% 50V	C0557	0806153	ELECTROLYTIC 10UF 16V
C0270	0893008	CERAMIC CHIP 0.1UF +-10% 16V	C0558	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0271	0806153	ELECTROLYTIC 10UF 16V	C0559	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0273	0806124	ELECTROLYTIC 10UF 4V (TYPE521)	C0560	0893202	CERAMIC CHIP 330PF+-10% 50V
C0275	0806174	ELECTROLYTIC 100UF 6.3V	C0561	0893165	CERAMIC CHIP 1.0UF+-80-20% 16V
C0352	0806178	ELECTROLYTIC 220UF 4V	C0562	0893203	CERAMIC CHIP 390PF+-10% 50V
C0353	0806124	ELECTROLYTIC 10UF 4V	C0563	0893158	CERAMIC CHIP 56PF+-5% 50V
C0354	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C0570	0206671	ELECTROLYTIC 10UF 10V
C0357	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0571	0206671	ELECTROLYTIC 10UF 10V
C0358	0806168	ELECTROLYTIC 47UF 6.3V	C0573	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0359	0806027	ELECTROLYTIC 4.7UF 4V	C0577	0206671	ELECTROLYTIC 10UF 10V
C0360	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C0579	0206671	ELECTROLYTIC 10UF 10V
C0363	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0581	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0364	0806124	ELECTROLYTIC 10UF 4V	C0582	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0365	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0585	AA00335R	CHIP CERAMIC 1.0UF+-80-20% 25V
C0368	0893131	CERAMIC CHIP 220PF+-5% 50V	C0586	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0391	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C0588	AA00335R	CHIP CERAMIC 1.0UF+-80-20% 25V
C0392	0893079	CERAMIC DISC 0.01UF+-80-20% 50V	C0589	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0590	0806157	ELECTROLYTIC 22UF 6.3V
C0402L	0893013	CERAMIC CHIP 0.22UF+-10% 16V	C0591	0893062	CERAMIC CHIP 1UF+-80-20% 16V
C0403L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V	C0602	0806149	ELECTROLYTIC 4.7UF 25V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V	C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0406L	0806163	ELECTROLYTIC 33UF 10V	C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0407L	0806018	ELECTROLYTIC 2.2UF 6.3V	C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V	C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0607	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0608	0893204	CERAMIC CHIP 470PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0609	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0610	0806153	ELECTROLYTIC 10UF 16V
C0412L	0806117	ELECTROLYTIC 3.3UF 16V	C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0413	0806018	ELECTROLYTIC 2.2UF 6.3V	C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0415L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0614	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0416	0806027	ELECTROLYTIC 4.7UF 4V	C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0417L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0418L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0419L	0893216	CERAMIC CHIP 3900PF+-10% 50V	C0618	0893204	CERAMIC CHIP 470PF+-10% 50V
C0420	0806131	CHIP CAPACITOR 2.2UF+-20% 20V	C0619	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0421	0893186	CERAMIC CHIP 0.033UF+-10% 16V	C0636	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0422	0806153	ELECTROLYTIC 10UF 16V	C0638	0893226	CERAMIC CHIP 0.15UF+-80-20% 16V
C0423	0806153	ELECTROLYTIC 10UF 16V	C0639	0806153	ELECTROLYTIC 10UF 16V
C0424L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0644	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0425	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C0645	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0426	0893013	CERAMIC CHIP 0.22UF+-10% 16V	C0646	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V	C0647	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0648	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0649	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0432	0806131	CHIP CAPACITOR 2.2UF+-20% 20V	C0650	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0439	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0656	0806153	ELECTROLYTIC 10UF 16V
C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0671	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C0672	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1128	0893079	CERAMIC DISC 0.01UF+-80-20% 50V
C0691	0893206	CERAMIC CHIP 680PF+-10% 50V	C1129	0893079	CERAMIC DISC 0.01UF+-80-20% 50V
C0692	0893202	CERAMIC CHIP 330PF+-10% 50V	C1130	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0693	0893199	CERAMIC CHIP 220PF+-10% 50V	C1131	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0694	0893191	CERAMIC CHIP 6800PF+-10% 25V	C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0695	0893217	CERAMIC CHIP 4700PF+-10% 50V	C1134	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0696	0893215	CERAMIC CHIP 3300PF+-10% 50V	C1135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0901	0806174	ELECTROLYTIC 100UF 6.3V	C1136	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0902	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1137	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0905	0806168	ELECTROLYTIC 47UF 6.3V	C1138	0893117	CERAMIC CHIP 22PF+-5% 50V
C0906	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C1139	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0907	0806175	ELECTROLYTIC 100UF 10V	C1141	0806169	ELECTROLYTIC 47UF 16V
C0908	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C1142	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0909	0806174	ELECTROLYTIC 100UF 6.3V	C1143	0806168	ELECTROLYTIC 47UF 6.3V
C0910	0893113	CERAMIC CHIP 10PF+-0.5% 50V	C1144	0202319	CERAMIC CHIP 22PF+-2% 50V
C0911	0893113	CERAMIC CHIP 10PF+-0.5% 50V	C1145	0893125	CERAMIC CHIP 82PF+-5% 50V
C0915	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1146	0893125	CERAMIC CHIP 82PF+-5% 50V
C0916	0893118	CERAMIC CHIP 27PF+-5% 50V	C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0917	0893119	CERAMIC CHIP 33PF+-5% 50V	C1148	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0918	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C1149	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0919	0893119	CERAMIC CHIP 33PF+-5% 50V	C1150	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0920	0893126	CERAMIC CHIP 100PF+-5% 50V	C1151	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0921	0893131	CERAMIC CHIP 220PF+-5% 50V (TYPE521)	C1152	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0923	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1153	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0924	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1154	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0925	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0927	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0928	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0930	0806174	ELECTROLYTIC 100UF 6.3V	C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0931	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1161	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0932	0806169	ELECTROLYTIC 47UF 16V	C1162	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0933	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0934	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1164	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0935	0806169	ELECTROLYTIC 47UF 16V	C1165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0936	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0939	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0940	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C1168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1002	0806169	ELECTROLYTIC 47UF 16V	C1169	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V
C1003	0893044	CERAMIC CHIP 0.01UF+-10% 50V	C1170	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V
C1004	0893234	CERAMIC CHIP 1500PF+-80-20% 50V	C1173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1005	0806163	ELECTROLYTIC 33UF 10V	C1174	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	0893113	CERAMIC CHIP 10PF+-0.5% 50V	C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V	C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1102	0893008	CERAMIC CHIP 0.1UF +-10% 16V	C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1103	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V	C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1106	0893062	CERAMIC CHIP 1UF+-80-20% 16V	C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1107	0806168	ELECTROLYTIC 47UF 6.3V	C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1109	0806169	ELECTROLYTIC 47UF 16V	C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1110	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1111	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V	C1212	0893055	CERAMIC CHIP 0.1UF+-80-20% 16V
C1113	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V	C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1116	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1117	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1118	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1119	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1120	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1121	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1122	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1124	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1125	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1126	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1311	0806169	ELECTROLYTIC 47UF 16V
C1127	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1312	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C1313	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
C1401	0806157	ELECTROLYTIC 22UF 6.3V	R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
C1402	0806157	ELECTROLYTIC 22UF 6.3V	R0112	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
C1405	0806167	ELECTROLYTIC 47UF 4V	R0115	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
C1406	0806167	ELECTROLYTIC 47UF 4V	R0116	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1407	0893209	CERAMIC CHIP 1200PF 50V	R0117	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C1408	0893209	CERAMIC CHIP 1200PF 50V	R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C1409	0893209	CERAMIC CHIP 1200PF 50V	R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C1410	0893209	CERAMIC CHIP 1200PF 50V	R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
C1411	0206647	ELECTROLYTIC 10UF 10V	R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
C1412	0206647	ELECTROLYTIC 10UF 10V	R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1413	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
C1414	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
C1416	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0128	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
C1417	0806157	ELECTROLYTIC 22UF 6.3V	R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0130	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0001	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W (S21)	R0132	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0005	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W (S21)	R0133	0105681	CHIP RESISTOR 2.7KOHM+-1% 1/16W
R0006	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W (S21)	R0134	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0007	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W (S21)	R0138	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0008	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W (S21)	R0141	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0009	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W (S21)	R0142	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0010	0103930	CHIP RESISTOR 390 OHM+-5% 1/8W (MEC.)	R0143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0010	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W (S21)	R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0011	0103838	RESISTOR CHIP 390 OHM+-5% 0.1W (MEC.)	R0146	0790033	CHIP RESISTOR 47KOHM+-5% 1/16W
R0011	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W (S21)	R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0012	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W (S21)	R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0013	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W (S21)	R0149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0014	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W (S21)	R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0015	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W (S21)	R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0016	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (S21)	R0154	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0017	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W (S21)	R0156	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0018	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W (S21)	R0157	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0019	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W (S21)	R0158	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0020	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (S21)	R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0021	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W (S21)	R0160	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0022	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (S21)	R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0023	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (S21)	R0164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0025	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W (S21)	R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0026	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W (S21)	R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0027	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W (S21)	R0168	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0028	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W (S21)	R0170	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0029	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W (S21)	R0171	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0030	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W (S21)	R0172	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0031	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W (S21)	R0173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0032	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W (S21)	R0174	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0033	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W (S21)	R0175	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0034	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W (S21)	R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0035	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W (S21)	R0180	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0036	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W (S21)	R0181	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0037	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W (S21)	R0182	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0040	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W (S21)	R0183	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0043	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W (S21)	R0184	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0185	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W	R0186	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W	R0187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0105	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R0191	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0192	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W	R0418L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W	R0419L	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0194	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W	R0428	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0196	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0429L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0198	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0435	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0199	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0436L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0445	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0205	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	R0447	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0208	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	R0460	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0461L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W	R0462L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W	R0463L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0464	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0465	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0466	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0222	0790069	CHIP RESISTOR 0.27KOHM+-5% 1/16W	R0467	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0223	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0468	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0469	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0225	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0470	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0227	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	R0501	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0502	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0229	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0503	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0234	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0236	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0239	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W	R0508	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0240	0105702	CHIP RESISTOR 16KOHM+-5% 1/16W	R0509	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R0551	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0552	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0553	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0250	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W	R0558	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0560	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0254	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0563	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0261	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0564	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0267	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0565	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0268	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0570	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0273	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	R0571	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0295	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0575	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0296	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0577	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0298	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W	R0578	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0355	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0583	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0357	0105688	CHIP RESISTOR 2.2KOHM+-1% 1/16W	R0586	AQ10271R	CHIP RESISTOR 100 OHM+-0.5% 1/16W
R0358	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0588	AQ10272R	CHIP RESISTOR 390 OHM+-0.5% 1/16W
R0359	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W(520)	R0591	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0362	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0593	AQ10273R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0364	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R0594	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0365	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0367	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0602	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0371	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	R0603	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0373	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0606	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0609	0105706	CHIP RESISTOR 24KOHM+-5% 1/16W
R0390	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0610	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0391	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0392	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W	R0612	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0397	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0401L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W	R0616	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0403L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0619	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0404L	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0405	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0408	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0410	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W	R0624	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0410	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	R0631	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0415	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0632	0790064	CHIP RESISTOR 10KOHM+-5% 1/16W



SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R0636	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0940	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0641	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	R0942	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0642	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W	R0943	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0661	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0944	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0662	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0945	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0663	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0946	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R0949	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0951	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0952	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0957	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0688	0104567	CHIP RESISTOR 150KOHM+-0.1% 1/16W	R0959	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0689	0105675	CHIP RESISTOR 100KOHM+-1% 1/16W	R0962	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0691	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0963	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0692	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0964	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0693	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0965	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0694	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0966	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R0695	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0967	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0696	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0968	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0697	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0969	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0698	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0970	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0699	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0971	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0714	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W (S21)	R0972	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0715	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0973	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0718	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0974	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0720	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0975	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0728	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0976	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W (S21)
R0729	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0977	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0730	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0731	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0737	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0980	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0981	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0902	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0982	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0903	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W	R0983	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0904	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0984	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0985	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0906	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0986	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0907	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0987	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0908	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0988	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0909	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0989	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0910	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0990	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0911	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0991	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0912	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0994	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1004	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0917	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1009	0103823	CHIP RESISTOR 22 OHM+-5% 0.1W
R0918	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1102	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0919	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1103	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0920	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R1104	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0921	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1105	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0922	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1106	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0923	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0924	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0925	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1109	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0926	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1110	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0929	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R1113	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0930	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R1114	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R0931	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1116	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0932	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1117	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0933	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1118	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0935	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0937	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W	R1120	0104545	CHIP RESISTOR 1.2KOHM+-1% 1/16W
R0938	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W	R1121	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R0939	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1122	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R1123	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W	R1330	0104579	CHIP RESISTOR 12KOHM+-1% 1/16W
R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1125	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W	R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1126	0104573	CHIP RESISTOR 1.2KOHM+-1% 1/16W	R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1130	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1131	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R1401	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1132	0104534	CHIP RESISTOR 1.8KOHM+-1% 1/16W	R1402	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1133	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W	R1403	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1134	0104502	CHIP RESISTOR 820 OHM+-1% 1/16W	R1404	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1135	0104553	CHIP RESISTOR 15KOHM+-1% 1/16W	R1405	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1406	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R1409	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R1410	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1146	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1411	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1147	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1412	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1151	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0001	5040202	SEMI VARIABLE 2.2KOHM (TYPE521)
R1152	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	RT0002	5040202	SEMI VARIABLE 2.2KOHM (TYPE521)
R1153	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W	RT0003	5040204	SEMI VARIABLE 10KOHM (TYPE521)
R1158	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0004	5040204	SEMI VARIABLE 10KOHM (TYPE521)
R1159	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0005	5040202	SEMI VARIABLE 2.2KOHM (TYPE521)
R1162	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W	RT0103	5040201	VARIABLE RESISTOR 470 OHM
R1164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	RT0203	5040205	SEMI VARIABLE 22KOHM
R1171	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	RT0204	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
R1172	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	RT0205	5040204	SEMI VARIABLE 10KOHM
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	RT0206	0104159	CHIP RESISTOR 1.5KOHM+-10% 1/8W
R1202	0790069	CHIP RESISTOR 270KOHM+-5% 1/16W	RT0207	5040205	SEMI VARIABLE 22KOHM
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	RT0209	5040205	SEMI VARIABLE 22KOHM
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	RT0210	5040201	VARIABLE RESISTOR 470 OHM
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	RT0211	0104159	CHIP RESISTOR 1.5KOHM+-10% 1/8W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	RT0212	5040202	SEMI VARIABLE 2.2KOHM
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	RT0215	5040204	SEMI VARIABLE 10KOHM
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	RT0216	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
R1209	0790058	CHIP RESISTOR 220KOHM+-5% 1/16W	00001	5337422	0100E 0A221 (TYPE521)
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	00001	CH10451	0100E PLT-462T3[MECHA.]
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	00051	CH10521	0100E ONF318U-1 (TYPE521)
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	D0052	CH10521	0100E DNF318U-1 (TYPE521)
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	00101	5337422	0100E 0A221
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	00352	5337351	0100E MA132WK
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	00394	5337422	0100E 0A221
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0401	5337422	0100E 0A221
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0551	5337372	0100E SB07-03C
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	D0554	5337352	0100E MA132WA
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	D0556	5326021	0100E MA160-M1D
R1221	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	00601	CC10291R	0100E 1SS353
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	00901	CC10291R	0100E 1SS353
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W	00902	CC10291R	0100E 1SS353
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	00905	CC10291R	0100E 1SS353
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	01001	CC10291R	0100E 1SS353
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	01101	5337372	0100E SB07-03C
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	01102	CC10291R	0100E 1SS353
R1306	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	01103	5328305	0100E MA151WA
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	01104	5382911	0100E LT1D82A
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	01303	5337422	0100E DA221
R1310	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	01403	5328305	0100E MA151WA
R1313	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	IC0001	CK13391R	IC AN2001SB (TYPE521)
R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC0101	1366631	IC HA118189MP
R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC0102	CK13461R	IC UPC5023GS-101-E1
R1317	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	IC0201	1366901	IC HA118372F
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	IC0202	CK12041R	IC CXL5516N
R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	IC0203	1352331	IC CXL5507M

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
IC0204	CK13471R	IC UPC5023GS-104-E1	00407	1323171	TRANSISTOR UN9213
IC0401	CK12231	IC HA118193F	00408L	1323361	TRANSISTOR XP1501
IC0551	1366251	IC TL1464IPT	00409	1323321	TRANSISTOR 2S02216
IC0601	CK12151R	IC UPC5023GS-079-E1	00410	1323321	TRANSISTOR 2S02216
IC0631	CK14251R	IC LB1888V	00501	5326513	TRANSISTOR 2SB1188 (R)
IC0671	1366651	IC BA6417F	00502	1323321	TRANSISTOR 2SD2216
IC0901	CK12177U	IC CXP87240A-107Q	00551	CA10271R	TRANSISTOR 2SB1424
IC0902	1352582	IC S-84206F	00553	1308011	TRANSISTOR MPL1
IC0903	1366081	IC H074HCT125T	00554	5326502	TRANSISTOR 2S01766 (R)
IC0904	1366612	IC XLU5949AFS	00556	CA10271R	TRANSISTOR 2SB1424
IC0907	CJ10201	TRANSISTOR GP1U261X	00557	1323321	TRANSISTOR 2S02216
IC1101	1366681	IC HA118184F	00602	1323321	TRANSISTOR 2S02216
IC1102	1365392	IC H049319AF	00691	1323321	TRANSISTOR 2S02216
IC1103	CK12132U	IC H651CS035TEA	00692	CA10271R	TRANSISTOR 2SB1424
IC1104	CK12061R	IC UP016510GR	00901	1323251	TRANSISTOR XP4601
IC1106	CK13801U	IC H06433042T13F	00903	1323081	TRANSISTOR 2SA1036K
IC1107	CK14171R	IC MX25S67MR	00904	1323231	TRANSISTOR 2SB1462
IC1201	CK13791R	IC UPC5023GS-105-E1	00905	1323321	TRANSISTOR 2S02216
IC1301	1366804	IC MPC17AT85VMEL	00908	1323271	TRANSISTOR DTC144EE
IC1302	1366804	IC MPC17AT85VMEL	01001	5328221	TRANSISTOR 2SC2620-QC
IC1401	FU10171	GYRO SENSOR ENC-05EA-02	01101	CA10583R	TRANSISTOR 2S8709A
IC1402	FU10172	GYRO SENSOR ENC-05EB-02	01103	5328192	TRANSISTOR 2SC2462LD
IC1403	CK11721R	IC NJU7032M	01104	CA10583R	TRANSISTOR 2S8709A
IC1404	1359931	IC TC4W66F	01105	CA10583R	TRANSISTOR 2S8709A
00001	1322341	TRANSISTOR PT4810F	01106	CA10583R	TRANSISTOR 2S8709A
00001	1323301	TRANSISTOR 2SB1219 (TYPE521)	01107	5328192	TRANSISTOR 2SC2462LD
00002	5327521	PHOTO TRANSISTOR SPI-315-C	01109	1323271	TRANSISTOR OTC144EE
00003	1323252	TRANSISTOR XP4501 (TYPE521)	01110	5328192	TRANSISTOR 2SC2462LD
00003	5327521	PHOTO TRANSISTOR SPI-315-C	01201	5328192	TRANSISTOR 2SC2462LD
00004	1322341	TRANSISTOR PT4810F	01202	1323141	TRANSISTOR 2SC2411K
00004	1323252	TRANSISTOR XP4501 (TYPE521)	01401	1323271	TRANSISTOR OTC144EE
00005	1323252	TRANSISTOR XP4501 (TYPE521)	Δ10551	5148333	TRANSFORMER, POWER
00051	CA10591R	TRANSISTOR 2S01366A	L0001	0773003	COIL 47UH (TYPE521)
00101	1323301	TRANSISTOR 2SB1219	L0002	0773002	COIL 22UH (TYPE521)
00102	1323231	TRANSISTOR 2SB1462	L0003	0773119	CHOKE COIL 12UH+-5% (TYPE521)
00103	1323231	TRANSISTOR 2SB1462	L0101	0773003	COIL 47UH
00104	1323181	TRANSISTOR XP4213	L0102	0773094	CHOKE COIL 100UH+-10%
00105	1323301	TRANSISTOR 2SB1219	L0103	0773124	CHOKE COIL 27UH+-5%
00107	1323231	TRANSISTOR 2SB1462	L0104	0773003	COIL 47UH
00108	1323271	TRANSISTOR OTC144EE	L0105	0773117	CHOKE COIL 8.2UH+-5%
00109	1323231	TRANSISTOR 2SB1462	L0107	0773134	CHOKE COIL 150UH+-5%
00110	5326471	TRANSISTOR 2SB1218 (R)	L0108	0773135	CHOKE COIL 180UH+-5%
00112	1323321	TRANSISTOR 2S02216	L0109	5129255	COIL 470UH
00117	1323173	TRANSISTOR UN9212	L0110	0773124	CHOKE COIL 27UH+-5%
00120	5326454	TRANSISTOR DTA124EU	L0111	5129256	COIL 330UH
00123	1323321	TRANSISTOR 2SD2216	L0170	0773091	CHOKE COIL 33UH
00170	1323301	TRANSISTOR 2SB1219	L0171	0773091	CHOKE COIL 33UH
00171	1323253	TRANSISTOR XP4401	L0172	0773129	CHOKE COIL 68UH+-5%
00173	1323253	TRANSISTOR XP4401	L0203	0773118	CHOKE COIL 10UH+-5%
00175	1323321	TRANSISTOR 2S02216	L0204	0773133	CHOKE COIL 120UH+-5%
00176	1323231	TRANSISTOR 2SB1462	L0206	0773088	CHOKE COIL 15UH
00210	1323321	TRANSISTOR 2S02216	L0350	0773003	COIL 47UH
00216	1323173	TRANSISTOR UN9212	L0401	0773003	COIL 47UH
00217	1323271	TRANSISTOR DTC144EE	L0552	BA10127R	COIL 10UH
00218	1323271	TRANSISTOR OTC144EE	L0553	BA10128R	COIL 22UH
00225	1323231	TRANSISTOR 2SB1462	L0554	BA10135R	COIL 10UH
00226	1323271	TRANSISTOR DTC144EE	L0556	BA10127R	COIL 10UH
00350	1323321	TRANSISTOR 2SD2216	L0558	BA10129R	COIL 47UH
00352	1323231	TRANSISTOR 2SB1462	L0560	0773001	CHOKE COIL 10UH+-10%
00353	1323361	TRANSISTOR XP1501	L0561	0773004	COIL 100UH
00356	1323321	TRANSISTOR 2SD2216	L0562	0773004	COIL 100UH
00390	1323271	TRANSISTOR DTC144EE	L0601	0773087	CHOKE COIL 10UH+-10%
00401L	1323171	TRANSISTOR UN9213	L0901	0773004	COIL 100UH
00403L	1323321	TRANSISTOR 2SD2216	L0902	0773121	CHOKE COIL 15UH+-5%
00404	1323321	TRANSISTOR 2SD2216	L0903	0773088	CHOKE COIL 15UH (TYPE521)

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
L1101	0773003	COIL 47UH	C2113	0893188	CERAMIC CHIP 0.047UF+-10% 16V
L1102	0773003	COIL 47UH	C2114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
L1103	0773001	CHOKE COIL 10UH+-10%	C2119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
L1106	0773094	CHOKE COIL 100UH+-10%	C2120	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
L1109	0773001	CHOKE COIL 10UH+-10%	C2121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
L1110	0773001	CHOKE COIL 10UH+-10%	C2122	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
L1301	0773001	CHOKE COIL 10UH+-10%	C2123	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
L1302	0773001	CHOKE COIL 10UH+-10%	C2124	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
X0201	1930211	CRYSTAL	C2136	0893062	CERAMIC CHIP 1UF+80-20% 16V
X0901	1930171	CRYSTAL	C2137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
X0902	BL10311R	CRYSTAL	C2138	0893193	CERAMIC CHIP 0.01UF+-10% 25V
X1101	1930094	CRYSTAL	C2141	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
BL0501	BV10201R	CHOKE COIL	C2181	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
CN0001	5845867	CONNECTOR	C2182	0806158	ELECTROLYTIC 22UF 16V
CN0502	5847081	CONNECTOR	C2183	0806174	ELECTROLYTIC 100UF 6.3V
CN0503	5845861	CONNECTOR	C2184	0806149	ELECTROLYTIC 4.7UF 25V
CN0901	1880371	CONNECTOR	C2185	0893008	CERAMIC CHIP 0.1UF +-10% 16V
CP0202	BE10231R	LC FILTER	C2187	0806153	ELECTROLYTIC 10UF 16V
CP0203	BE10341R	FILTER, BAND PASS	C2203	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
CP0204	BE10343R	FILTER, BAND PASS	C2204	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
CP1101	5172675	FILTER, LOW PASS	C2205	0893175	CERAMIC CHIP 1000PF+-5% 50V
ΔF0501	5723232	FUSE 2A	C2207	0893175	CERAMIC CHIP 1000PF+-5% 50V
ΔF0502	5723231	FUSE 1.6A	C2211	0206673	ELECTROLYTIC 33UF 6.3V
JK0200	5695291	SOCKET	C2212	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
JK0201	ES10242	JACK, AV	C2213	0893175	CERAMIC CHIP 1000PF+-5% 50V
JK0501	5693601	DC JACK	C2214	0893127	CERAMIC CHIP 120PF+-5% 50V
PG0001	5668921	MINI PLUG	C2215	0893217	CERAMIC CHIP 4700PF+-10% 50V
PG0001	5668672	PLUG (TYPE521)	C2216	0806019	ELECTROLYTIC 2.2UF 10V
PG0051	5668672	PLUG (TYPE521)	C2217	0202025	CERAMIC DISC 4700PF+-5% 50V
PG0101	EA10501R	PLUG	C2218	0806149	ELECTROLYTIC 4.7UF 25V
PG0401L	5668671	MINI PLUG	C2219	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0501	1830322	PLUG	C2220	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0502	5668671	MINI PLUG	C2221	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0503	5668675	PLUG	C2222	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0551	5669037	MINI PLUG	C2223	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0601	5692362	MINI PLUG	C2224	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0602	EA10641R	PLUG	C2225	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0603	5668753	MINI PLUG	C2226	0893154	CERAMIC CHIP 27PF+-5% 50V
PG0604	5668671	MINI PLUG	C2227	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
PG0901	5668572	MINI PLUG	R2101	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
PG0902	5668752	MINI PLUG	R2102	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
PG0903	5669193	MINI PLUG	R2103	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
PG0903	5669194	PLUG	R2104	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
PG1001	1830344	PLUG	R2105	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
PG1101	1830343	PLUG	R2106	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
PG1102	1830351	PLUG	R2107	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
PG1301	EA10407R	CONNECTOR	R2108	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
ΔOF1301	FW10112R	FUSE 0.2A	R2109	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
S0003	5636171	SWITCH	R2110	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
S0004	5636171	SWITCH	R2111	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
S0005	5636171	SWITCH	R2112	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
S0006	5635331	SWITCH	R2113	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
S0007	5613523	SWITCH	R2115	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
S0501	FD10201	SWITCH	R2118	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
S0502	FE10151	SWITCH	R2119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
SW0901	1742012	SWITCH	R2120	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
CRD SECTION (TYPE520, 521)					
C2102	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2121	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
C2104	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2122	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
C2105	0893191	CERAMIC CHIP 6800PF+-10% 25V	R2125	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
C2106	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2126	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
C2108	0806153	ELECTROLYTIC 10UF 16V	R2128	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
C2110	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R2129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
			R2139	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
			R2140	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
			R2142	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W



Note: This replacement parts list applies to the following model.  
Applicable model: VM-H620A/H720A




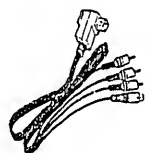




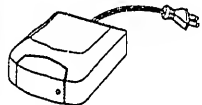
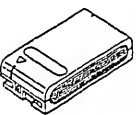
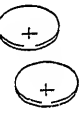
## 3. MECHANICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R2143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W			
R2148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W			
R2151	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W			
R2153	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W			
R2154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W			
R2181	0105593	CHIP RESISTOR 680 OHM+-5% 1/2W			
R2182	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W			
R2184	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W			
R2202	0105697	CHIP RESISTOR 390KOHM+-1% 1/16W			
R2203	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W			
R2204	0105202	CHIP RESISTOR 39KOHM+-0.5% 1/16W			
R2207	0104514	CHIP RESISTOR 1.96KOHM+-1% 1/16W			
R2208	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W			
R2209	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W			
R2210	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W			
R2211	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W			
R2212	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W			
R2213	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W			
R2215	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W			
R2216	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W			
R2217	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W			
RT2101	AW10168	TIMMER RESISTOR			
RT2102	AW10168	TIMMER RESISTOR			
RT2103	AW10168	TIMMER RESISTOR			
RT2104	5040107	SEMI VARIABLE 10KOHM			
RT2105	5040106	SEMI VARIABLE 4.7KOHM			
RT2106	5040106	SEMI VARIABLE 4.7KOHM			
RT2181	5040106	SEMI VARIABLE 4.7KOHM			
RT2201	5040108	SEMI VARIABLE			
Q2101	5337354	DIODE MA133			
Q2102	5337354	DIODE MA133			
Q2103	5337354	DIODE MA133			
Q2201	5337031	DIODE 1SV201			
Q2202	5337353	DIODE MA132K			
IC2101	CK10522U	IC 1R3Y18A			
IC2181	CK11961R	IC NJM431U			
IC2202	1366341	IC ETM303070A			
L2181	0773094	CHOKE COIL 100UH+-10%			
L2182	0773094	CHOKE COIL 100UH+-10%			
L2203	8A10131R	COIL 220UH			
L2204	0773121	CHOKE COIL 15UH+-5%			
X21D1	BL10111R	CRYSTAL			
CP2101	5172474	TRAP COIL			
PG2102	1830022	PLUG			
PG2104	1830022	PLUG			
PG2201	EA10348R	CONNECTOR			
PG2203	1830191	PLUG			

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
MECHANISM SECTION					
101	0D13915	LID, CASSETTE (TYPE620)	216	6406131	GEAR
101	0D13919	LID, CASSETTE (TYPE720)	217	4588464	RING, LOADING
102	0X10823	RING, LENS	218	4589354	BASE, GUIDE ROLLER(I)
103	4799701	CAP, FOOD	219	KX10171	GUIDE ROLLER
105	0X10833	RING, LENS	220	4589366	BASE, GUIDE ROLLER(O)
106	NX11242	RING	221	KX11161	GUIDE ROLLER
107	0D13444	CASE, SIDE (L)	222	4587796	PLATE
109	PC11052	BUTTON, LID	223	KX10534	BASE, CYLINDER
110	0X10177	HOOD, LENS	224	6406156	ROLLER, IMPEDANCE
111	0D11734	COVER, TOP	227	4589012	ARM, TENSION
112	0D11721	COVER, LENS	228	6554231	SPRING
113	0D11861	COVER, SWITCH	229	4588553	BAND, TENSION
114	PC11061	KNOB, EJECT	230	6408832	COVER, IDLER
115	GH10171	MICROPHONE	231	NA10601	PLATE
116	NT10281	FRAME, MECHANISM	232	4588294	ARM, PRESSURE ROLLER
117	NJ10411	HOLDER	233	7787571	WASHER
118	0X10813	CASE, BATTERY	234	4588702	ARM
119	0D11702	WINDOW, IR	235	6554201	SPRING
120	FH10192	SWITCH ASSY	236	KX10731	LEVER
121	4899872	SPRING	237	4588532	SPRING
122	5604851	SWITCH, T/W	238	4588429	PLATE
123	0D11627	CASE, SIDE (R)	239	4588353	BRAKE
124	4826123	STOPPER	240	6554221	SPRING
125	4345032	SHEET, EVF	241	6554214	SPRING
126	0D11684	CASE, BATTERY (TYPE620)	242	GP10191	MOTOR, CAPSTAN
126	0D11683	CASE, BATTERY (TYPE720)	244	5794021	BRUSH
127	NJ10471	HOLDER, BATTERY (R)	245	4588995	COVER
128	NJ10401	HOLDER, BATTERY (L)	246	KX10761	CASSETTE HOLDER ASSY
129	NJ10421	HOLDER, JACK	247	7789314	WASHER
130	PC11081	BOTTOM, POWER	248	4827262	BRACKET
131	4752651	KNOB, LOCK	501	HX10253	CYLINDER ASSY (CY-53C3-F)
132	0D11971	CAP, BATTERY	601	NT10302	FRAME, LENS
133	0X11041	SHOE	602	UE11253	CCO IMAGE SENSOR ASSY
134	PV10171	STRAP, HAND	603	K010433	LENS ASSY
135	NX11531	HINGE	607	NX11251	RUBBER
136	MN10831	SHEET	608	0T10151	CRYSTAL
137	MU10651	CUSHION	700	UX10482	EVF ASSY (TYPE620)
138	0D11651	COVER, TERMINAL	700	UX10461	EVF ASSY (TYPE720)
139	0D11661	COVER, JACK	700	5319062	CRT (TYPE620)
140	0D11641	COVER, OC	702	4715252	CASE, CRT (TYPE620)
141	KL10491	TERMINAL (L)	701	CS10321	MODULE HTS9554 (TYPE720)
142	KL10501	TERMINAL (R)	703	4715241	CASE, CRT (B) (TYPE620)
143	NJ10541	HOLDER, TERMINAL	702	DB10161	LCD (TYPE720)
144	0X11051	COVER, TERMINAL	703	MN11221	SFACER (TYPE720)
145	NX11261	HOLDER, BATTERY	704	4592241	COVER (TYPE620)
146	NJ10431	HOLDER, EJECT	705	0D11823	CASE, EVF (TYPE620)
150	0L13002	SHEET, BATTERY	706	EF10248	CONNECTOR (TYPE620)
201	6404062	REEL OISK, TAKE-UP	707	0D13541	LENS, EVF (TYPE620)
202	6406114	GEAR	708	0X11991	CAP, EYE (TYPE620)
203	7787733	WASHER	709	0D11851	CASE, EVF (B) (TYPE620)
204	6404073	REEL OISK, SUPPLY	710	0D10584	HOLDER, LCD (TYPE720)
205	6401644	GEAR, IDLER	711	0D10574	COVER LIGHT (TYPE720)
206	6406211	GEAR	712	0D10612	PIECE (TYPE720)
207	6406034	GEAR, PULLEY	713	4717041	LENS, EVF (TYPE720)
208	6358471	BELT	714	4798771	CAP, EYE (TYPE720)
209	KX10622	LOADING MOTOR BLOCK	715	0D11787	CASE, EVF (TYPE720)
210	6376312	GEAR, DRIVE	716	0D12172	CASE, EVF (TYPE720)
211	6406082	GEAR	723	JD10211	FLEXIBLE CONNECTOR (TYPE720)
212	6406242	GEAR	724	5846771	CONNECTOR (TYPE720)
213	6405834	GEAR (R)	725	5844972	CONNECTOR (TYPE720)
214	7787731	WASHER	726	MU10711	SHEET (TYPE720)
215	6405824	GEAR (L)	751	4102531	SCREW
			752	0D13291	CASE, LOWER
			753	4115381	CORD, POWER
			754	0D13941	CASE, UPPER

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
755	0L12833	SHEET, CLEAR	960	8619063	SCREW (1.7X3)
901	7775946	SCREW (2X6)	961	8711105	SCREW (2X5)
902	7775963	SCREW (2X3)	962	7785886	SCREW
903	7775945	SCREW (2X5)	963	8700264	1.7X2 SCREW
905	7773891	SCREW	964	8741103	SCREW (2X3)
906	8650103	SCREW (2X3)	ACCESSORIES		
907	MJ10221	SCREW			
908	8700968	SCREW (1.7X3.0)	△802	TS11742	AC ADAPTOR (VM-AC85A)
909	8639106	SCREW (2X6)	803	EV10411	CORO. PLUG
911	8619003	SCREW 1.7X5	(TYPE620)		
912	8700970	SCREW (1.7X4.0)			
913	MJ10311	SCREW (M2X4.5)	804	5856292	CORO. POWER
951	8712024	PAIN HEAD SCREW-1.4MMX3MM	805	5616582	REMOTE HAND SET (VM-RM70A)
952	8700272	SCREW (1.7X5)	807	TS11791	SHOULDER STRAP
953	7775921	SCREW (1.4X2)	808	4798221	STRING, CAP
954	8714004	SCREW (1.4X2.5)			
956	8619065	SCREW (1.7X6)			
957	8700976	SCREW (1.7X8.0)			
958	7770791	SCREW			
959	8712904	SCREW (1.4X2.0)			

## ACCESSORIES

△ AC ADAPTOR/CHARGER	DC CORD	AV OUTPUT CORD (For Normal 8 MODEL)	AV OUTPUT CORD (For Hi-8 MODEL)
 [VM-AC85A]			
REMOTE CONTROLLER	REMOTE CONTROLLER	SHOULDER STRAP	STRING
 [VM-RME55A]	 [VM-RM70A]		
AV OPTICAL WIRELESS RECEIVER (For Type 521)	△	△	
 [VM-IR20A]			WARNING: Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.

## 4. ELECTRICAL PARTS LIST

Note: This replacement parts list applies to the following model.  
Applicable model: VM-H620A/H720A

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
VCR & CAMERA SECTION					
C0101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C0182	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0102	0806174	ELECTROLYTIC 100UF 6.3V	C0183	0806153	ELECTROLYTIC 10UF 16V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0184	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0185	0806023	ELECTROLYTIC 3.3UF 4V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0187	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0188	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0189	0893161	CERAMIC CHIP 82PF+-5% 50V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0190	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0191	0893124	CHIP CERAMIC 68PF+-5% 50V
C0111	0893008	CERAMIC CHIP 0.1UF +-10% 16V	C0201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0202	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0113	0806001	ELECTROLYTIC 0.1UF 35V	C0203	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0114	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0115	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0205	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0206	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0207	0893115	CERAMIC CHIP 15PF+-5% 50V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0208	0893127	CERAMIC CHIP 120PF+-5% 50V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V	C0209	0893122	CERAMIC CHIP 47PF+-5% 50V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V	C0210	0893109	CERAMIC CHIP 7.0PF 50V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V	C0213	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0214	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0131	0806168	ELECTROLYTIC 47UF 6.3V	C0215	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0132	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0216	0806174	ELECTROLYTIC 100UF 6.3V
C0133	0893119	CERAMIC CHIP 33PF+-5% 50V	C0217	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0134	0893104	CERAMIC CHIP 2.0PF 50V	C0218	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0136	0893115	CERAMIC CHIP 15PF+-5% 50V	C0219	0806024	ELECTROLYTIC 3.3UF 6.3V
C0137	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0224	0893127	CERAMIC CHIP 120PF+-5% 50V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0226	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V	C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V	C0228	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0143	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0229	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0144	0893214	CERAMIC CHIP 2700PF+-10% 50V	C0230	0893122	CERAMIC CHIP 47PF+-5% 50V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0231	0806168	ELECTROLYTIC 47UF 6.3V
C0146	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V	C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0147	0893114	CERAMIC CHIP 12PF+-5% 50V	C0235	0893124	CHIP CERAMIC 68PF+-5% 50V
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0237	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0149	0893117	CERAMIC CHIP 22PF+-5% 50V	C0238	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0150	0893114	CERAMIC CHIP 12PF+-5% 50V	C0240	0893114	CERAMIC CHIP 12PF+-5% 50V
C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0242	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0152	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0244	0806027	ELECTROLYTIC 4.7UF 4V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0245	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0246	0806124	ELECTROLYTIC 10UF 4V
C0156	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0247	0806027	ELECTROLYTIC 4.7UF 4V
C0159	0893109	CERAMIC CHIP 7.0PF 50V	C0248	0893118	CERAMIC CHIP 27PF+-5% 50V
C0163	0806168	ELECTROLYTIC 47UF 6.3V	C0249	0893127	CERAMIC CHIP 120PF+-5% 50V
C0164	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0250	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0251	0806027	ELECTROLYTIC 4.7UF 4V
C0168	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C0252	0806149	ELECTROLYTIC 4.7UF 25V
C0169	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0170	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0254	0806153	ELECTROLYTIC 10UF 16V
C0171	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0255	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0172	0806153	ELECTROLYTIC 10UF 16V	C0256	0893162	CERAMIC CHIP 100PF+-5% 50V
C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0257	0806174	ELECTROLYTIC 100UF 6.3V
C0174	0806124	ELECTROLYTIC 10UF 4V	C0258	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0175	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V	C0259	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0176	0893117	CERAMIC CHIP 22PF+-5% 50V	C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0177	0893152	CERAMIC CHIP 18PF+-5% 50V	C0261	0893117	CERAMIC CHIP 22PF+-5% 50V
C0178	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0262	0893108	CERAMIC CHIP 6.0PF+-0.5% 50V
C0179	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0263	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0180	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0264	0893167	CERAMIC CHIP 270PF+-5% 50V
C0181	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0265	0893165	CERAMIC CHIP 180PF+-5% 50V
			C0266	0893164	CERAMIC CHIP 150PF+-5% 50V
			C0267	0893153	CERAMIC CHIP 22PF+-5% 50V
			C0270	0893008	CERAMIC CHIP 0.1UF +-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C0271	0806153	ELECTROLYTIC 10UF 16V	C0431R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0272	0893118	CERAMIC CHIP 27PF+-5% 50V	C0432	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0275	0806174	ELECTROLYTIC 100UF 6.3V	C0439	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0350	0806124	ELECTROLYTIC 10UF 4V	C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0351	0806178	ELECTROLYTIC 220UF 4V	C0441R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0352	0806178	ELECTROLYTIC 220UF 4V	C0443	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V
C0353	0806124	ELECTROLYTIC 10UF 4V	C0445	0893062	CERAMIC CHIP 1UF+-80-20% 16V
C0354	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C0457L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0355	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C0458	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0356	0893193	CERAMIC CHIP 0.01UF+-10% 25V (620)	C0459	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0357	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0460	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0358	0806168	ELECTROLYTIC 47UF 6.3V	C0461	0893008	CERAMIC CHIP 0.1UF+-10% 16V
C0359	0806027	ELECTROLYTIC 4.7UF 4V	C0462R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0360	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C0501	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0362	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0502	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0364	0806124	ELECTROLYTIC 10UF 4V	C0503	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0365	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0551	0893155	CERAMIC CHIP 33PF+-5% 50V
C0368	0893131	CERAMIC CHIP 220PF+-5% 50V	C0552	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0391	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C0553	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0392	0893079	CERAMIC DISC 0.01UF+-80-20% 50V	C0555	020942	CERAMIC CHIP 100PF+-5% 50V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0556	0893008	CERAMIC CHIP 0.1UF+-10% 16V
C0401R	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0557	0806153	ELECTROLYTIC 10UF 16V
C0402L	0893013	CERAMIC CHIP 0.22UF+-10% 16V	C0558	0893008	CERAMIC CHIP 0.1UF+-10% 16V
C0402R	0893013	CERAMIC CHIP 0.22UF+-10% 16V	C0559	0893008	CERAMIC CHIP 0.1UF+-10% 16V
C0403L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0560	0893202	CERAMIC CHIP 330PF+-10% 50V
C0403R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0561	0893165	CERAMIC CHIP 180PF+-5% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V	C0562	0893203	CERAMIC CHIP 330PF+-10% 50V
C0404R	0893213	CERAMIC CHIP 2200PF+-10% 50V	C0563	0893158	CERAMIC CHIP 56PF+-5% 50V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V	C0567	0893227	CERAMIC CHIP 0.22UF+-80-20% 16V
C0405R	0893211	CERAMIC CHIP 1500PF+-10% 50V	C0570	0206671	ELECTROLYTIC 10UF 10V
C0406L	0806163	ELECTROLYTIC 33UF 10V	C0571	0206671	ELECTROLYTIC 10UF 10V
C0406R	0806163	ELECTROLYTIC 33UF 10V	C0573	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0407L	0806018	ELECTROLYTIC 2.2UF 6.3V	C0577	0206671	ELECTROLYTIC 10UF 10V
C0407R	0806018	ELECTROLYTIC 2.2UF 6.3V	C0579	0206671	ELECTROLYTIC 10UF 10V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V	C0581	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0408R	0806027	ELECTROLYTIC 4.7UF 4V	C0582	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0585	AA00335R	CHIP CERAMIC 1.0UF+-80-20% 25V
C0409R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0586	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0588	AA00335R	CHIP CERAMIC 1.0UF+-80-20% 25V
C0410R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0589	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0590	0806157	ELECTROLYTIC 22UF 6.3V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0591	0893062	CERAMIC CHIP 1UF+-80-20% 16V
C0412L	0806117	ELECTROLYTIC 3.3UF 16V	C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0412R	0806147	ELECTROLYTIC 3.3UF 35V	C0602	0806149	ELECTROLYTIC 4.7UF 25V
C0413	0806018	ELECTROLYTIC 2.2UF 6.3V	C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0415L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0415R	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0416	0806027	ELECTROLYTIC 4.7UF 4V	C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0417L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0607	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0417R	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0608	0893204	CERAMIC CHIP 470PF+-10% 50V
C0418L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0609	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0418R	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0610	0806153	ELECTROLYTIC 10UF 16V
C0419L	0893216	CERAMIC CHIP 3900PF+-10% 50V	C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0419R	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0420	0806131	CHIP CAPACITOR 2.2UF+-20% 20V	C0614	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0421	0893186	CERAMIC CHIP 0.033UF+-10% 16V	C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0422	0806153	ELECTROLYTIC 10UF 16V	C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0423	0806153	ELECTROLYTIC 10UF 16V	C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0424L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0618	0893204	CERAMIC CHIP 470PF+-10% 50V
C0425	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C0619	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0426	0893013	CERAMIC CHIP 0.22UF+-10% 16V	C0636	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V	C0638	0893226	CERAMIC CHIP 0.15UF+-80-20% 16V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0639	0806153	ELECTROLYTIC 10UF 16V
C0430R	0893091	CERAMIC CHIP 0.022UF+-10% 16V	C0644	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0645	0893008	CERAMIC CHIP 0.1UF+-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C0646	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C1121	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0647	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C1122	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0648	0893211	CERAMIC CHIP 1500PF+-10% 50V	C1124	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0649	0893211	CERAMIC CHIP 1500PF+-10% 50V	C1125	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0650	0893211	CERAMIC CHIP 1500PF+-10% 50V	C1126	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0656	0806153	ELECTROLYTIC 10UF 16V	C1127	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0671	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1128	0893079	CERAMIC DISC 0.01UF+-80-20% 50V
C0672	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1129	0893079	CERAMIC DISC 0.01UF+-80-20% 50V
C0691	0893206	CERAMIC CHIP 680PF+-10% 50V	C1130	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0692	0893202	CERAMIC CHIP 330PF+-10% 50V	C1131	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0693	0893199	CERAMIC CHIP 220PF+-10% 50V	C1132	0893117	CERAMIC CHIP 22PF+-5% 50V
C0694	0893191	CERAMIC CHIP 6800PF+-10% 25V	C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0695	0893217	CERAMIC CHIP 4700PF+-10% 50V	C1134	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0696	0893215	CERAMIC CHIP 3300PF+-10% 50V	C1135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0901	0806174	ELECTROLYTIC 100UF 6.3V	C1136	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0902	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1137	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0905	0806168	ELECTROLYTIC 47UF 6.3V	C1138	0893117	CERAMIC CHIP 22PF+-5% 50V
C0906	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C1139	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0907	0806175	ELECTROLYTIC 100UF 10V	C1141	0806169	ELECTROLYTIC 47UF 16V
C0908	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C1142	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0909	0806174	ELECTROLYTIC 100UF 6.3V	C1143	0806168	ELECTROLYTIC 47UF 6.3V
C0910	0893113	CERAMIC CHIP 10PF+-0.5% 50V	C1144	0202319	CERAMIC CHIP 22PF+-2% 50V
C0911	0893113	CERAMIC CHIP 10PF+-0.5% 50V	C1145	0893125	CERAMIC CHIP 82PF+-5% 50V
C0915	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1146	0893215	CERAMIC CHIP 82PF+-5% 50V
C0916	0893118	CERAMIC CHIP 27PF+-5% 50V	C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0917	0893119	CERAMIC CHIP 33PF+-5% 50V	C1148	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0918	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C1149	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0919	0893119	CERAMIC CHIP 33PF+-5% 50V	C1150	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0920	0893126	CERAMIC CHIP 100PF+-5% 50V	C1151	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0921	0893131	CERAMIC CHIP 220PF+-5% 50V (TYPE620)	C1152	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0923	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1153	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0924	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1154	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V
C0925	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0927	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0928	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0930	0806174	ELECTROLYTIC 100UF 6.3V	C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0931	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1161	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0932	0806169	ELECTROLYTIC 47UF 16V	C1162	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V
C0933	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0934	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1164	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0935	0806169	ELECTROLYTIC 47UF 16V	C1165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0936	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0939	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V	C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0940	0202328	CERAMIC CHIP 1.0UF+-80-20% 16V	C1168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1002	0806169	ELECTROLYTIC 47UF 16V	C1169	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V
C1003	0893044	CERAMIC CHIP 0.01UF+-10% 50V	C1170	0893239	CERAMIC CHIP 0.01UF+-80-20% 50V
C1004	0893234	CERAMIC CHIP 1500PF+-80-20% 50V	C1173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1005	0806163	ELECTROLYTIC 33UF 10V	C1174	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V	C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1102	0893008	CERAMIC CHIP 0.1UF+-10% 16V	C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1103	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V	C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1106	0893062	CERAMIC CHIP 1UF+-80-20% 16V	C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1107	0806168	ELECTROLYTIC 47UF 6.3V	C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1109	0806169	ELECTROLYTIC 47UF 16V	C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1110	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1111	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V	C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1113	0893067	CERAMIC CHIP 0.1UF+-80-20% 25V	C1212	0893055	CERAMIC CHIP 0.1UF+-80-20% 16V
C1116	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1117	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1118	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1119	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1120	0893225	CERAMIC CHIP 0.1UF+-80-20% 16V	C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0142	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V	R0143	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V	R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V	R0145	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0146	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
C1311	0806169	ELECTROLYTIC 47UF 16V	R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
C1312	0893225	CERAMIC CHIP 0.1UF+-20% 16V	R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C1313	0893225	CERAMIC CHIP 0.1UF+-20% 16V	R0149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0151	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0154	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
C1401	0806157	ELECTROLYTIC 22UF 6.3V	R0156	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
C1402	0806157	ELECTROLYTIC 22UF 6.3V	R0157	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
C1403	0893225	CERAMIC CHIP 0.1UF+-20% 16V	R0158	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
C1404	0893225	CERAMIC CHIP 0.1UF+-20% 16V	R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1405	0806167	ELECTROLYTIC 47UF 4V	R0160	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
C1406	0806167	ELECTROLYTIC 47UF 4V	R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1407	0893209	CERAMIC CHIP 1200PF 50V	R0163	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
C1408	0893209	CERAMIC CHIP 1200PF 50V	R0164	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
C1409	0893209	CERAMIC CHIP 1200PF 50V	R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C1410	0893209	CERAMIC CHIP 1200PF 50V	R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
C1411	0206647	ELECTROLYTIC 10UF 10V	R0168	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
C1412	0206647	ELECTROLYTIC 10UF 10V	R0170	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C1413	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0171	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
C1414	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0172	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
C1415	0893225	CERAMIC CHIP 0.1UF+-20% 16V	R0173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
C1416	0893225	CERAMIC CHIP 0.1UF+-20% 16V	R0174	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
C1417	0806157	ELECTROLYTIC 22UF 6.3V	R0175	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
C1418	0893225	CERAMIC CHIP 0.1UF+-20% 16V	R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0010	0103930	CHIP RESISTOR 390 OHM+-5% 1/8W	R0180	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0011	0103838	RESISTOR CHIP 390 OHM+-5% 0.1W	R0181	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0182	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W	R0183	0790038	CHIP RESISTOR 1KOHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W	R0184	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0185	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0105	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0186	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W	R0188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0191	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W	R0192	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0112	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0194	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0196	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0198	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0115	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W	R0199	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0116	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R0201	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0117	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0202	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0205	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W	R0207	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W	R0208	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R0209	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0128	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0130	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0132	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0222	0790072	CHIP RESISTOR 39KOHM+-5% 1/16W
R0133	0105681	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0223	0790037	CHIP RESISTOR 10KOHM+-5% 1/16W
R0138	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0140	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0225	0790077	CHIP RESISTOR 1MOM+-5% 1/16W
R0141	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W	R0227	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0413R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0229	0790077	CHIP RESISTOR 1MOM+-5% 1/16W	R0414	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0236	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0415	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0239	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0240	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R0417R	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R0418L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0243	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	R0418R	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0419L	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0245	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0419R	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0428	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0247	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0429L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0248	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0429R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0435	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0254	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0436L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0255	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0436R	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0257	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0445	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0258	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0447	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0259	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0460	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0260	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0461L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0261	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0462L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0265	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0463L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0267	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W	R0464	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0268	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0465	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0270	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	R0466	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0271	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0467	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0272	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0468	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0274	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0469	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0292	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0470	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0293	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W	R0501	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0294	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0502	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0295	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W	R0503	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0296	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0298	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0299	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0508	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0350	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0509	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0351	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0551	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0355	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0552	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0553	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0357	0105688	CHIP RESISTOR 2.2KOHM+-1% 1/16W	R0558	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0358	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0560	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0358	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W (620)	R0563	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0359	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W (621)	R0564	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0362	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0565	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0364	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R0570	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0366	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0571	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0367	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0575	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0371	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	R0577	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0373	0790077	CHIP RESISTOR 1MOM+-5% 1/16W	R0578	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0583	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0390	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0391	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0586	A010271R	CHIP RESISTOR 100 OHM+-0.5% 1/16W
R0392	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W	R0588	A010272R	CHIP RESISTOR 390 OHM+-0.5% 1/16W
R0397	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0591	A010274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0401L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0593	A010273R	CHIP RESISTOR 10KOHM+-5% 1/16W
R0401R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0594	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W	R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0402R	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W	R0602	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0403L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0603	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0403R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0606	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0404L	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	R0609	0105706	CHIP RESISTOR 24KOHM+-5% 1/16W
R0404R	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	R0610	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0405	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W



SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R0616	0790037	CHIP RESISTOR 1K0HM+-5% 1/16W	R0931	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0619	0790039	CHIP RESISTOR 1.5K0HM+-5% 1/16W	R0932	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0620	0790042	CHIP RESISTOR 2.2K0HM+-5% 1/16W	R0933	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0621	0790043	CHIP RESISTOR 2.7K0HM+-5% 1/16W	R0935	0790046	CHIP RESISTOR 4.7K0HM+-5% 1/16W
R0622	0790043	CHIP RESISTOR 2.7K0HM+-5% 1/16W	R0937	0104542	CHIP RESISTOR 10K0HM+-1% 1/16W
R0624	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0938	0104542	CHIP RESISTOR 10K0HM+-1% 1/16W
R0631	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R0939	0790046	CHIP RESISTOR 4.7K0HM+-5% 1/16W
R0632	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0940	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W
R0636	0790037	CHIP RESISTOR 1K0HM+-5% 1/16W	R0942	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0641	0790053	CHIP RESISTOR 15K0HM+-5% 1/16W	R0943	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0642	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W	R0944	0790055	CHIP RESISTOR 22K0HM+-5% 1/16W
R0661	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0945	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0662	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0946	0790037	CHIP RESISTOR 10K0HM+-5% 1/16W
R0663	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R0949	0790037	CHIP RESISTOR 10K0HM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680K0HM+-5% 1/16W	R0953	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22K0HM+-5% 1/16W	R0957	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R0959	0790042	CHIP RESISTOR 2.2K0HM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R0962	0790042	CHIP RESISTOR 2.2K0HM+-5% 1/16W
R0688	0104567	CHIP RESISTOR 150K0HM+-0.1% 1/16W	R0963	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W
R0689	0105675	CHIP RESISTOR 100K0HM+-1% 1/16W	R0964	0104562	CHIP RESISTOR 39K0HM+-1% 1/16W
R0691	0790062	CHIP RESISTOR 68K0HM+-5% 1/16W	R0965	0104503	CHIP RESISTOR 27K0HM+-1% 1/16W
R0692	0790062	CHIP RESISTOR 68K0HM+-5% 1/16W	R0966	0104563	CHIP RESISTOR 47K0HM+-1% 1/16W
R0693	0790062	CHIP RESISTOR 68K0HM+-5% 1/16W	R0967	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W
R0694	0790048	CHIP RESISTOR 6.8K0HM+-5% 1/16W	R0968	0104562	CHIP RESISTOR 39K0HM+-1% 1/16W
R0695	0790048	CHIP RESISTOR 6.8K0HM+-5% 1/16W	R0969	0104503	CHIP RESISTOR 27K0HM+-1% 1/16W
R0696	0790048	CHIP RESISTOR 6.8K0HM+-5% 1/16W	R0970	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W
R0697	0790055	CHIP RESISTOR 22K0HM+-5% 1/16W	R0971	0790046	CHIP RESISTOR 4.7K0HM+-5% 1/16W
R0698	0790037	CHIP RESISTOR 1K0HM+-5% 1/16W	R0972	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0699	0790037	CHIP RESISTOR 1K0HM+-5% 1/16W	R0973	0790042	CHIP RESISTOR 2.2K0HM+-5% 1/16W
R0715	0790046	CHIP RESISTOR 4.7K0HM+-5% 1/16W	R0974	0790039	CHIP RESISTOR 1.5K0HM+-5% 1/16W
R0718	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R0975	0790039	CHIP RESISTOR 1.5K0HM+-5% 1/16W
R0720	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R0976	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W (620)
R0728	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W	R0977	0790047	CHIP RESISTOR 5.6K0HM+-5% 1/16W
R0729	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W	R0978	0790037	CHIP RESISTOR 10K0HM+-5% 1/16W
R0730	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R0979	0790037	CHIP RESISTOR 10K0HM+-5% 1/16W
R0731	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W	R0980	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0737	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0981	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0982	0790049	CHIP RESISTOR 8.2K0HM+-5% 1/16W
R0902	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R0983	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0903	0790073	CHIP RESISTOR 470K0HM+-5% 1/16W	R0984	0790042	CHIP RESISTOR 2.2K0HM+-5% 1/16W
R0904	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R0985	0790044	CHIP RESISTOR 3.3K0HM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0986	0790054	CHIP RESISTOR 18K0HM+-5% 1/16W
R0906	0790037	CHIP RESISTOR 1K0HM+-5% 1/16W	R0987	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0907	0790039	CHIP RESISTOR 1.5K0HM+-5% 1/16W	R0988	0790063	CHIP RESISTOR 82K0HM+-5% 1/16W
R0908	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0989	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W
R0909	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0990	0790037	CHIP RESISTOR 10K0HM+-5% 1/16W
R0910	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R0991	0790059	CHIP RESISTOR 47K0HM+-5% 1/16W
R0911	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R0994	0790049	CHIP RESISTOR 8.2K0HM+-5% 1/16W
R0912	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R1001	0790048	CHIP RESISTOR 6.8K0HM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R1003	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R1004	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R1009	0103823	CHIP RESISTOR 220K0HM+-5% 0.1W
R0917	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R1102	0790068	CHIP RESISTOR 220K0HM+-5% 1/16W
R0918	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R1103	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W
R0919	0790051	CHIP RESISTOR 10K0HM+-5% 1/16W	R1104	0790037	CHIP RESISTOR 10K0HM+-5% 1/16W
R0920	0790075	CHIP RESISTOR 680K0HM+-5% 1/16W	R1105	0790055	CHIP RESISTOR 22K0HM+-5% 1/16W
R0921	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R1106	0790053	CHIP RESISTOR 15K0HM+-5% 1/16W
R0922	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0923	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0924	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R1109	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0925	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R1110	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0926	0790077	CHIP RESISTOR 1M0HM+-5% 1/16W	R1113	0790015	CHIP RESISTOR 22 OHM+-5% 1/16W
R0929	0790042	CHIP RESISTOR 2.2K0HM+-5% 1/16W	R1114	0104571	CHIP RESISTOR 3.9K0HM+-1% 1/16W
R0930	0790064	CHIP RESISTOR 100K0HM+-5% 1/16W	R1116	0790038	CHIP RESISTOR 1.2K0HM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R1117	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R1313	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1118	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1120	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W	R1317	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R1121	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W	R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1122	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W	R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1123	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W	R1330	0104579	CHIP RESISTOR 12KOHM+-1% 1/16W
R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1125	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W	R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1126	0104573	CHIP RESISTOR 1.2KOHM+-1% 1/16W	R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1130	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1131	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R1401	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1132	0104534	CHIP RESISTOR 1.8KOHM+-1% 1/16W	R1402	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W
R1133	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W	R1403	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1134	0104502	CHIP RESISTOR 820 OHM+-1% 1/16W	R1404	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1135	0104553	CHIP RESISTOR 15KOHM+-1% 1/16W	R1405	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1406	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R1409	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R1410	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1146	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1411	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1147	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1412	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1151	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0103	5040201	VARIABLE RESISTOR 470 OHM
R1152	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	RT0202	5040205	SEMI VARIABLE 22KOHM
R1153	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W	RT0203	5040205	VARIABLE RESISTOR 22KOHM
R1158	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0204	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
R1159	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0205	5040204	VARIABLE RESISTOR 10KOHM
R1162	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W	RT0206	0104159	CHIP RESISTOR 1.5KOHM+-10% 1/8W
R1164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	RT0207	5040205	VARIABLE RESISTOR 22KOHM
R1171	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	RT0209	5040205	VARIABLE RESISTOR 4.7KOHM
R1172	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	RT0210	5040201	VARIABLE RESISTOR 470 OHM
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	RT0211	0104159	CHIP RESISTOR 1.5KOHM+-10% 1/8W
R1202	0790059	CHIP RESISTOR 0.27MOHM+-5% 1/16W	RT0212	5040202	SEMI VARIABLE 2.2KOHM
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	RT0214	5040204	SEMI VARIABLE 10KOHM
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	RT0215	5040204	VARIABLE RESISTOR 10KOHM
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	RT0216	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	RT0217	5040205	SEMI VARIABLE 22KOHM
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	00001	CH10451	DIODE PLT-462T3
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	00101	5337422	DIODE OA221
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	00102	5337351	DIODE MA132WK
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	00352	5337351	DIODE MA132WK
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	D0394	5337422	DIODE OA221
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	00401	5337422	DIODE OA221
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	D0551	5337372	DIODE SB07-03C
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0554	5337352	DIODE MA132WA
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0556	5326021	DIODE MA160-M10
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0601	CC10291R	DIODE 1SS353
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	00901	CC10291R	DIODE 1SS353
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	D0902	CC10291R	DIODE 1SS353
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	D0905	CC10291R	DIODE 1SS353
R1221	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	D1001	CC10291R	DIODE 1SS353
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	D1101	5337372	DIODE SB07-03C
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W	D1102	CC10291R	DIODE 1SS353
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D1103	5328305	DIODE MA151WA
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D1104	5382911	DIODE LTI082A
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D1303	5337422	DIODE OA221
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D1403	5328305	DIODE MA151WA
R1306	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	IC0101	1366631	IC HA18189MP
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC0102	CK13461R	IC UPC5023GS-101-E1
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC0201	1366924	IC HA18192AF
R1310	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	IC0202	CK12041R	IC CXL5516N

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
IC0203	1352331	IC CXL5507M	Q0228	1323271	TRANSISTOR OTC144EE
IC0204	CK13471R	IC UPC5023GS-104-E1	Q0229	1323241	TRANSISTOR XP1213
IC0401	CK12241	IC HA118193F	Q0231	1323271	TRANSISTOR OTC144EE
IC0551	1366251	IC TL1464IPT	Q0232	5326103	TRANSISTOR FMS1
IC0601	CK12151R	IC UPC5023GS-079-E1	Q0350	1323321	TRANSISTOR 2S02216
IC0631	CK14251R	IC LB1888V	Q0352	1323331	TRANSISTOR 2SB1462
IC0671	1366651	IC BA6417F	Q0353	1323361	TRANSISTOR XP1501
IC0901	CK12177U	IC CXP87240A-107Q	Q0355	1323321	TRANSISTOR 2S02216
IC0902	1352582	IC S-84206F	Q0390	1323271	TRANSISTOR OTC144EE
IC0903	1366081	IC H074HCT125T	Q0401L	1323171	TRANSISTOR UN9213
IC0904	1366612	IC XLU5949AFS	Q0401R	1323171	TRANSISTOR UN9213
IC0907	CJ10201	TRANSISTOR GPIU261X	Q0402	1323171	TRANSISTOR UN9213
IC1001	UE11253	CCO IMAGE SENSOR ASSY	Q0403L	1323321	TRANSISTOR 2S02216
IC1101	1366681	IC HA118184F	Q0403R	1323321	TRANSISTOR 2S02216
IC1102	1365392	IC H049319AF	Q0404	1323321	TRANSISTOR 2S02216
IC1103	CK12132U	IC HG51CS035TEA	Q0407	1323171	TRANSISTOR UN9213
IC1104	CK12061R	IC UP016510GR	Q0408L	1323361	TRANSISTOR XP1501
IC1106	CK13801U	IC H06433042T13F	Q0409	1323321	TRANSISTOR 2S02216
IC1107	CK14171R	IC MX25567MR	Q0410	1323321	TRANSISTOR 2S02216
IC1201	CK13791R	IC UPC5023GS-105-E1	Q0501	5326513	TRANSISTOR 2SB1188 (R)
IC1301	1366804	IC MPC17AT85VMEI	Q0502	1323321	TRANSISTOR 2S02216
IC1302	1366804	IC MPC17AT85VMEI	Q0551	CA10271R	TRANSISTOR 2SB1424
IC1401	FUI0171	GYRO SENSOR ENC-05EA-02	Q0553	1308011	TRANSISTOR MPL1
IC1402	FUI0172	GYRO SENSOR ENC-05EB-02	Q0554	5326502	TRANSISTOR 2S01766 (R)
IC1403	CK11721R	IC NJU7032M	Q0556	CA10271R	TRANSISTOR 2SB1424
IC1404	1359931	IC TC4W66F	Q0557	1323321	TRANSISTOR 2S02216
Q0001	1323241	TRANSISTOR PT4810F	Q0602	1323321	TRANSISTOR 2S02216
Q0002	5327521	PHOTO TRANSISTOR SPI-315-C	Q0691	1323321	TRANSISTOR 2S02216
Q0003	5327521	PHOTO TRANSISTOR SPI-315-C	Q0692	CA10271R	TRANSISTOR 2SB1424
Q0004	1323241	TRANSISTOR PT4810F	Q0901	1323251	TRANSISTOR XP4601
Q0101	1323301	TRANSISTOR 2SB1219	Q0903	1323081	TRANSISTOR 2SA1036K
Q0102	1323231	TRANSISTOR 2SB1462	Q0904	1323231	TRANSISTOR 2SB1462
Q0103	1323231	TRANSISTOR 2SB1462	Q0905	1323321	TRANSISTOR 2S02216
Q0104	1323181	TRANSISTOR XP4213	Q0908	1323271	TRANSISTOR OTC144EE
Q0105	1323301	TRANSISTOR 2SB1219	Q1001	5328221	TRANSISTOR 2SC2620-0C
Q0107	1323231	TRANSISTOR 2SB1462	Q1101	CA10583R	TRANSISTOR 2SB709A
Q0108	1323271	TRANSISTOR OTC144EE	Q1103	5328192	TRANSISTOR 2SC2462L0
Q0109	1323231	TRANSISTOR 2SB1462	Q1104	CA10583R	TRANSISTOR 2SB709A
Q0110	5326471	TRANSISTOR 2SB1218 (R)	Q1105	CA10583R	TRANSISTOR 2SB709A
Q0111	1323283	TRANSISTOR UHM11W	Q1106	CA10583R	TRANSISTOR 2SB709A
Q0112	1323321	TRANSISTOR 2S02216	Q1107	5328192	TRANSISTOR 2SC2462L0
Q0116	1323173	TRANSISTOR UN9212	Q1109	1323271	TRANSISTOR OTC144EE
Q0117	1323173	TRANSISTOR UN9212	Q1110	5328192	TRANSISTOR 2SC2462L0
Q0120	5326454	TRANSISTOR OTA124EU	Q1201	5328192	TRANSISTOR 2SC2462L0
Q0123	1323321	TRANSISTOR 2S02216	Q1202	1323141	TRANSISTOR 2SC2411K
Q0140	1323241	TRANSISTOR XP1213	Q1401	1323271	TRANSISTOR OTC144EE
Q0170	1323301	TRANSISTOR 2SB1219	ΔT0551	5148333	TRANSFORMER, POWER
Q0171	1323253	TRANSISTOR XP4401	L0101	0773003	COIL 47UH
Q0173	1323253	TRANSISTOR XP4401	L0102	0773094	CHOKE COIL 100UH+-10%
Q0175	1323321	TRANSISTOR 2S02216	L0103	0773124	CHOKE COIL 27UH+-5%
Q0176	1323321	TRANSISTOR 2SB1462	L0104	0773003	COIL 47UH
Q0201	1323241	TRANSISTOR XP1213	L0105	0773117	CHOKE COIL 8.2UH+-5%
Q0202	1323271	TRANSISTOR OTC144EE	L0107	0773134	CHOKE COIL 150UH+-5%
Q0203	1323241	TRANSISTOR XP1213	L0108	0773135	CHOKE COIL 180UH+-5%
Q0206	1323253	TRANSISTOR XP4401	L0109	5129255	COIL 470UH
Q0208	1323241	TRANSISTOR XP1213	L0110	0773123	CHOKE COIL 22UH+-5%
Q0209	1323241	TRANSISTOR XP1213	L0111	5129256	COIL 33UH
Q0210	1323321	TRANSISTOR 2S02216	L0170	0773091	CHOKE COIL 33UH
Q0216	1323173	TRANSISTOR UN9212	L0171	0773091	CHOKE COIL 33UH
Q0217	1323271	TRANSISTOR OTC144EE	L0172	0773129	CHOKE COIL 68UH+-5%
Q0219	1323241	TRANSISTOR XP1213	L0201	0773124	CHOKE COIL 27UH+-5%
Q0221	1323241	TRANSISTOR XP1213	L0203	0773118	CHOKE COIL 10UH+-5%
Q0224	1323181	TRANSISTOR XP4213	L0204	0773133	CHOKE COIL 120UH+-5%
Q0225	1323231	TRANSISTOR 2SB1462	L0206	0773088	CHOKE COIL 15UH
Q0226	1323271	TRANSISTOR OTC144EE	L0207	0773129	CHOKE COIL 68UH+-5%

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
L0350	0773003	COIL 47UH	S0006	5635331	SWITCH
L0401	0773003	COIL 47UH	S0007	5613523	SWITCH
L0552	BA10127R	COIL 10UH	S0501	F010201	SWITCH
L0553	BA10128R	COIL 22UH	S0502	FE10151	SWITCH
L0554	BA10135R	COIL 10UH	SW0901	1742012	SWITCH
L0556	BA10127R	COIL 10UH	B/W EVF [EM0] SECTION (TYPE620)		
L0558	BA10129R	COIL 47UH	C2001	0806169	ELECTROLYTIC 47UF 16V
L0560	0773001	CHOCE COIL 10UH+-10%	C2002	0806169	ELECTROLYTIC 47UF 16V
L0561	0773004	COIL 100UH	C2003	0806146	ELECTROLYTIC 2.2UF 50V
L0562	0773004	COIL 100UH	C2004	0268437	POLYPROPYLENE 4700PF+-5%50V
L0601	0773087	CHOKE COIL 10UH+-10%	C2005	0256871	ELECTROLYTIC 47UF 25V
L0901	0773004	COIL 100UH	C2006	0249655	CERAMIC CHIP 1000PF+-10% 100QV
L0902	0773121	CHOKE COIL 15UH+-5%	C2007	0249656	CERAMIC CHIP 1000PF+-10% 500V
L0903	0773088	CHOKE COIL 15UH	C2008	0806146	ELECTROLYTIC 2.2UF 50V
L1101	0773003	COIL 47UH	C2009	0893086	CERAMIC CHIP 0.1UF+-80-20% 50V
L1102	0773003	COIL 47UH	C2011	0209852	CERAMIC CHIP 180PF+-5% 50V
L1103	0773001	CHOCE COIL 10UH+-10%	C2012	0893086	CERAMIC CHIP 0.1UF+-80-20% 50V
L1106	0773094	CHOKE COIL 100UH+-10%	C2013	0893086	CERAMIC CHIP 0.1UF+-80-20% 50V
L1109	0773001	CHOCE COIL 10UH+-10%	C2014	0268521	MYLAR 0.1UF+-10% 50V
L1110	0773001	CHOCE COIL 10UH+-10%	C2015	0202151	CERAMIC CHIP 2200PF+-5% 50V
L1301	0773001	CHOCE COIL 10UH+-10%	C2016	0893044	CERAMIC CHIP 0.01UF+-10% 50V
L1302	0773001	CHOCE COIL 10UH+-10%	C2017	0806145	ELECTROLYTIC 1UF 50V
X0201	1930211	CRYSTAL	C2018	0893062	CERAMIC CHIP 1UF+-80-20% 16V
X0901	1930171	CRYSTAL	R2001	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
X0902	8110311R	CRYSTAL	R2002	0103869	CHIP RESISTOR 150KOHM+-5% 0.1W
X1101	1930094	CRYSTAL	R2003	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
BL0501	BV10201R	CHOKE COIL	R2004	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
BN0001	5845867	CONNECTOR	R2005	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
CN0502	5847081	CONNECTOR	R2006	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
CN0503	5845861	CONNECTOR	R2007	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
CN0901	1880371	CONNECTOR	R2008	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
CP0202	8E10231R	LC FILTER	R2009	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
CP0203	8E10341R	FILTER, BAND PASS	R2011	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
CP0204	BE10343R	FILTER, BAND PASS	R2012	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
CP0205	5172734	DELAY LINE	R2013	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
CP0206	5172735	FILTER, LOW PASS	R2014	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
CP1101	5172676	FILTER, LOW PASS	R2015	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
ΔF0501	5723232	FUSE 2A	R2016	0103814	CHIP RESISTOR 3.9 OHM+-5% 0.1W
ΔF0502	5723231	FUSE 1.6A	R2017	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
JK0200	5695291	SOCKET	R2018	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
JK0201	ES10242	JACK, AV	R2019	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
JK0501	5693601	OC JACK	R2020	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
PG0001	5669921	MINI PLUG	R2021	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
PG0101	EA10501R	PLUG	R2022	0103831	CHIP RESISTOR 100 OHM+-5% 0.1W
PG0401R	5668673	MINI PLUG	R2023	0103882	JUMPER CHIP RESISTOR
PG0501	1830322	PLUG	R2024	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
PG0502	5668671	MINI PLUG	R2025	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
PG0503	5668675	PLUG	R2026	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
PG0551	5669037	MINI PLUG	R2027	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
PG0601	5692362	MINI PLUG	R2028	0103972	CHIP JUMPER
PG0602	EA10641R	PLUG	RT2001	5035204	SEMI VARIABLE 2.2MOHM
PG0603	5668753	MINI PLUG	RT2002	5030251	SEMI VARIABLE 1MOHM
PG0604	5668671	MINI PLUG	RT2003	5040103	SEMI VARIABLE 470 OHM
PG0609	5668572	MINI PLUG	Q2001	5337133	0100E MA141K
PG0602	5668752	MINI PLUG	Q2002	5337321	0100E MA199
PG0903	5669193	MINI PLUG	IC2001	1365881	IC HA118179F
PG0903	5669194	PLUG	Q2001	5323831	TRANSISTOR 2S0974
PG1001	1830344	PLUG	Q2002	5326682	TRANSISTOR XN18301
PG1101	1830343	PLUG	T2001	5240566	TRANSFORMER
PG1102	1830351	PLUG	L2001	0773003	COIL 47UH
PG1301	EA10407R	CONNECTOR	L2002	5244017	COIL
ΔOF1301	FM10112R	FUSE 0.2A	CS2001	5887005	SOCKET
S0003	5636171	SWITCH	PG2001	5669631	CONNECTOR
S0004	5636171	SWITCH			
S0005	5636171	SWITCH			



## CHAPTER 6 SCHEMATIC AND CIRCUIT BOARD DIAGRAMS

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
PG2002	5668469	PLUG	R2120	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
COLOR EVE [CRE] SECTION (TYPE720)			R2121	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
C2102	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2122	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
C2104	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2125	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
C2105	0893191	CERAMIC CHIP 6800PF+-10% 25V	R2126	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
C2106	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2128	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
C2108	0806153	ELECTROLYTIC 10UF 16V	R2129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
C2110	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R2139	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
C2113	0893188	CERAMIC CHIP 0.047UF+-10% 16V	R2140	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
C2114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R2142	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
C2119	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R2143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
C2120	0893059	CERAMIC CHIP 0.47UF+80-20% 16V	R2148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C2121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R2151	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
C2122	0893231	CERAMIC CHIP 0.068UF+80-20% 25V	R2153	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C2123	0893231	CERAMIC CHIP 0.068UF+80-20% 25V	R2154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C2124	0893231	CERAMIC CHIP 0.068UF+80-20% 25V	R2181	0105593	CHIP RESISTOR 680 OHM+-5% 1/2W
C2136	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2182	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
C2137	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R2184	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C2138	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R2202	0105697	CHIP RESISTOR 390KOHM+-1% 1/16W
C2141	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R2203	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
C2181	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	R2204	0105202	CHIP RESISTOR 39KOHM+-0.5% 1/16W
C2182	0806158	ELECTROLYTIC 22UF 16V	R2207	0104514	CHIP RESISTOR 1.96KOHM+-1% 1/16W
C2183	0806174	ELECTROLYTIC 100UF 6.3V	R2208	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
C2184	0806149	ELECTROLYTIC 4.7UF 25V	R2209	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
C2185	0893008	CERAMIC CHIP 0.1UF +-10% 16V	R2210	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
C2187	0806153	ELECTROLYTIC 10UF 16V	R2211	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
C2203	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R2212	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C2204	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	R2213	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C2205	0893175	CERAMIC CHIP 1000PF+-5% 50V	R2215	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
C2207	0893175	CERAMIC CHIP 1000PF+-5% 50V	R2216	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
C2211	0206673	ELECTROLYTIC 33UF 6.3V	R2217	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
C2212	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	RT2101	AW10168	TIMMER RESISTOR
C2213	0893175	CERAMIC CHIP 1000PF+-5% 50V	RT2102	AW10168	TIMMER RESISTOR
C2214	0893127	CERAMIC CHIP 120PF+-5% 50V	RT2103	AW10168	TIMMER RESISTOR
C2215	0893217	CERAMIC CHIP 4700PF+-10% 50V	RT2104	5040107	SEMI VARIABLE 10KOHM
C2216	0806019	ELECTROLYTIC 2.2UF 10V	RT2105	5040106	SEMI VARIABLE 4.7KOHM
C2217	0202025	CERAMIC DISC 4700PF+-5% 50V	RT2106	5040106	SEMI VARIABLE 4.7KOHM
C2218	0806149	ELECTROLYTIC 4.7UF 25V	RT2181	5040106	SEMI VARIABLE 4.7KOHM
C2219	0893154	CERAMIC CHIP 27PF+-5% 50V	RT2201	5040108	SEMI VARIABLE
C2220	0893154	CERAMIC CHIP 27PF+-5% 50V	02101	5337354	0100E MA133
C2221	0893154	CERAMIC CHIP 27PF+-5% 50V	02102	5337354	0100E MA133
C2222	0893154	CERAMIC CHIP 27PF+-5% 50V	02103	5337354	0100E MA133
C2223	0893154	CERAMIC CHIP 27PF+-5% 50V	02201	5337031	0100E 1SV201
C2224	0893154	CERAMIC CHIP 27PF+-5% 50V	02202	5337353	0100E MA132K
C2225	0893154	CERAMIC CHIP 27PF+-5% 50V	IC2101	CK10522U	IC IR3Y18A
C2226	0893154	CERAMIC CHIP 27PF+-5% 50V	IC2181	CK11961R	IC NJM431U
C2227	0893232	CERAMIC CHIP 0.1UF+80-20% 25V	IC2202	1356341	IC ETM3030T0A
R2101	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	L2181	0773094	CHOKE COIL 100UH+-10%
R2102	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	L2182	0773094	CHOKE COIL 100UH+-10%
R2103	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	L2203	BA10131R	COIL 220UH
R2104	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W	L2204	0773121	CHOKE COIL 15UH+-5%
R2105	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	X2101	BL10111R	CRYSTAL
R2106	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W	CP2101	5172474	TRAP COIL
R2107	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W	PG2102	1830022	PLUG
R2108	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	PG2104	1830022	PLUG
R2109	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W	PG2201	EA10348R	CONNECTOR
R2110	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W	PG2203	1830191	PLUG
R2111	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W			
R2112	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W			
R2113	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W			
R2115	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W			
R2118	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W			
R2119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W			

### Cautions when using schematic diagrams

#### Caution for safety

The parts marked  $\Delta$  are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

#### 1. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

#### (Resistors)

Item	Indication
Value	No indication ..... $\Omega$ K ..... k $\Omega$ M ..... M $\Omega$
Tolerance	No indication ..... $\pm 5\%$ (All tolerances other than $\pm 5\%$ are indicated in the schematic diagrams)
Power capacitance	No indication ..... 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

#### (Capacitors)

Item	Indication
Value	No indication ..... $\mu F$ P ..... pF
Dielectric strength	No indication ..... 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

#### (Coils)

Item	Indication
Value	$\mu$ ..... $\mu H$ m ..... mH

#### 2. Markings in schematic diagrams

- Parts marked  $\blacksquare$  with circuit numbers in the schematic diagrams are discrete parts.
- Parts marked  $\odot$  with circuit numbers in the schematic diagrams are leadless parts.

### Cautions when using circuit board diagrams

#### 1. Identifications of sides A/B in circuit board diagrams

- Board having a pattern on one side and parts on both sides.

Side A: Shows discrete parts, viewed from the pattern side.

Side B: Shows leadless parts, viewed from the pattern side.

- Board having patterns on both sides and parts on both sides.

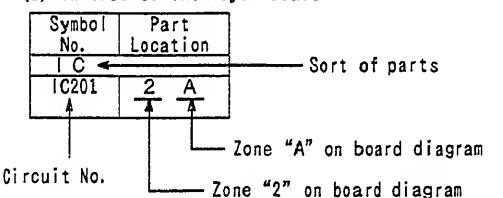
Side A: Shows parts and patterns which can be seen when the case is opened.

Side B: Shows parts and the pattern on the back of side A.

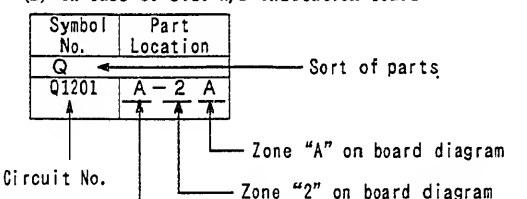
#### 2. Table for indexing locations of parts

This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

- In case of one-layer board



- In case of side A/B indication board



- A: Shows side A  
B: Shows side B

**MAIN IVCA**

COMPONENT SERIES 100

PRE AMP [P6-27.33] ----- 200.300

LUMINANCE/CHROMA [P6-31.37] ----- 100.200

CCD DELAY [P6-29.35] ----- 300

JACK [P6-18] ----- 400

AUDIO [P6-23.25] ----- 500

DC-DC CONVERTER [P6-21] ----- 600

SERVO [P6-15] ----- 900

SYSTEM CONTROL [P6-11] ----- 900

TROUBLE SENSOR [P6-14] ----- 1100

SENSOR DRIVE [P6-5] ----- 1100

DIGITAL PROCESS [P6-7] ----- 1200.1300

AUTO FOCUS [P6-9] ----- 1

AV TRANSMITTER [P6-19] ----- 1

**PG1301**

1 ZOOM A (-) 1

2 ZOOM A (+) 2

3 ZOOM B (-) 3

4 ZOOM B (+) 4

5 DRIVE (-) 5

6 HALL OUT (-) 6

7 HALL IN (+) 7

8 DRIVE (+) 8

9 HALL OUT (+) 9

10 HALL IN (-) 10

11 FOCUS A (+) 11

12 FOCUS A (-) 12

13 FOCUS B (+) 13

14 FOCUS B (-) 14

15 FOCUS LED 15

16 FOCUS VCC 16

17 FOCUS SENSOR 17

18 ZOOM LED 18

19 ZOOM VCC 19

20 ZOOM SENSOR 20

**LENS BLOCK**

**PG0001**

1 LED (+) 1

2 LED (-) 2

3 GND 3

**PG0051**

1 GND 1

2 GND 2

3 GND 3

**P6-20**

**OPTICAL [OPT]**

**PG902**

1 RTS 1

2 FLYE 2

3 FOCUS (+) 3

4 FOCUS (-) 4

5 GND 5

6 REV 6

7 PLAY 7

8 STOP 8

9 F.FWD 9

10 DATE/TIME 10

11 16x9 11

**OPERATION SWITCH UNIT**

**PG603**

1 GND 1

2 COO SIG 2

3 GND 3

4 GND 4

5 V 5

6 U 6

7 Y 7

8 CYL PG (+) 8

9 CYL PG (-) 9

10 CYL DM 10

**CYLINDER MOTOR BLOCK**

**PG1001**

1 GND 1

2 COO SIG 2

3 GND 3

4 GND 4

5 V 5

6 U 6

7 Y 7

8 CYL PG (+) 8

9 CYL PG (-) 9

10 CYL DM 10

**PG1101**

1 GND 1

2 COO SIG 2

3 GND 3

4 GND 4

5 V 5

6 U 6

7 Y 7

8 CYL PG (+) 8

9 CYL PG (-) 9

10 CYL DM 10

**PG602**

1 CAPST PG 1

2 CAPST DM 2

3 SV 3

4 6V SW 4

5 B\* GND 5

6 GND 6

7 GND 7

8 CAP REVERSE 8

9 GND 9

**CAPSTAN MOTOR BLOCK**

**PG1002**

1 GND 1

2 COO SIG 2

3 GND 3

4 GND 4

5 V 5

6 U 6

7 Y 7

8 CYL PG (+) 8

9 CYL PG (-) 9

10 CYL DM 10

**PG1102**

1 TEST 1

2 T ZOOM 2

3 GND 3

4 VIDEO 4

**T/W SW UNIT**

**PG604**

1 LOAD 1

2 UNLOAD 2

**LOADING MOTOR**

**PG901**

1 TAPE STAGE 1

2 TAPE DM 2

3 M STATE 3

4 M STATE 4

5 M STATE 5

6 GND 6

7 S REL 7

8 S/D 8

9 GND 9

10 END LED 10

11 REV END 11

12 T REL 12

13 TB 13

14 PE/PP 14

15 H+8 PP 15

**MECHA STATE SW**

**PG1**

1 M STATE 1

2 M STATE 2

3 M STATE 3

4 GND 4

**TROUBLE SENSOR [HTS9551C]**

**PG501**

1 B+ 1

2 B+ 2

3 DC LIGHT ON 3

4 REC START 4

5 VCR SW 5

6 CAR SW 6

7 GND 7

8 GND 8

**PG503**

1 B+ 1

2 B+ 2

3 DC LIGHT ON 3

4 REC START 4

5 VCR SW 5

6 CAR SW 6

7 GND 7

8 GND 8

**PG551**

1 B+ 1

2 B+ 2

3 DC LIGHT ON 3

4 REC START 4

5 VCR SW 5

6 CAR SW 6

7 GND 7

8 GND 8

**PG502**

1 DC LIGHT (-) 1

2 DC LIGHT (+) 2

**P6-21**

**DC/SWITCH [DCS]**

**PG601**

1 SV 1

2 TRACKING 2

3 SW/SHZ 3

4 GND 4

5 FM ENV 5

6 TEST 6

7 SW/SHZ I/O 7

**PG101**

1 GND 1

2 CH-1 PG 2

3 CH-1 REC 3

4 GND 4

5 GND 5

6 CH-2 PG 6

7 CH-2 REC 7

8 GND 8

9 GND 9

10 FLY ERASE 10

**PG002**

1 MIC 1

2 GND 2

**MIC MODULE**

**PG401R**

1 GND 1

2 MIC (+) 2

3 GND 3

4 MIC (-) 4

**STEREO MIC MODULE**

**PG2001**

1 CH2001 1

2 H DEF 2

3 V DEF 3

4 V DEF 4

**EVF DEFLECTION COIL**

**CS2001**

1 GND 1

2 GND 2

3 H K 3

4 H 4

5 G1 5

**CRT SOCKET**

**PG903**

1 H. SINE 1

2 GND 2

3 VIDEO EVF 3

4 SV3 EVF 4

**PG2002**

1 H. SINE 1

2 GND 2

3 VIDEO EVF 3

4 SV3 EVF 4

**ELECTRONIC VIEWFINDER [EMQ]**

**PG2104**

1 GND 1

2 R 2

3 B 3

4 G 4

5 12V 5

**ADJUSTMENT TERMINAL**

**PG2203**

1 BL HD 1

2 SV3 2

3 GND 3

**BACK LIGHT UNIT**

**PG2201**

1 LCON 1

2 DT 2

3 VDD T 3

4 VSS T 4

5 LCON 5

6 G 6

7 B 7

8 R 8

9 GND 9

10 16.5V 10

11 UK 11

12 CLK1 12

13 CLK4 13

14 CLK3 14

15 CLK5 15

16 CLK2 16

17 CLK1 17

18 CLK1 18

19 CLK1 19

20 DT 20

21 GY 21

22 CLY 22

**COLOR EVF [CORE]**

**PG903**

1 H. SINE 1

2 GND 2

3 VIDEO EVF 3

4 SV3 EVF 4

5 16.5V 5

**PG2102**

1 LCON 1

2 DT 2

3 VDD T 3

4 VSS T 4

5 LCON 5

6 G 6

7 B 7

8 R 8

9 GND 9

10 16.5V 10

11 UK 11

12 CLK1 12

13 CLK4 13

14 CLK3 14

15 CLK5 15

16 CLK2 16

17 CLK1 17

18 CLK1 18

19 CLK1 19

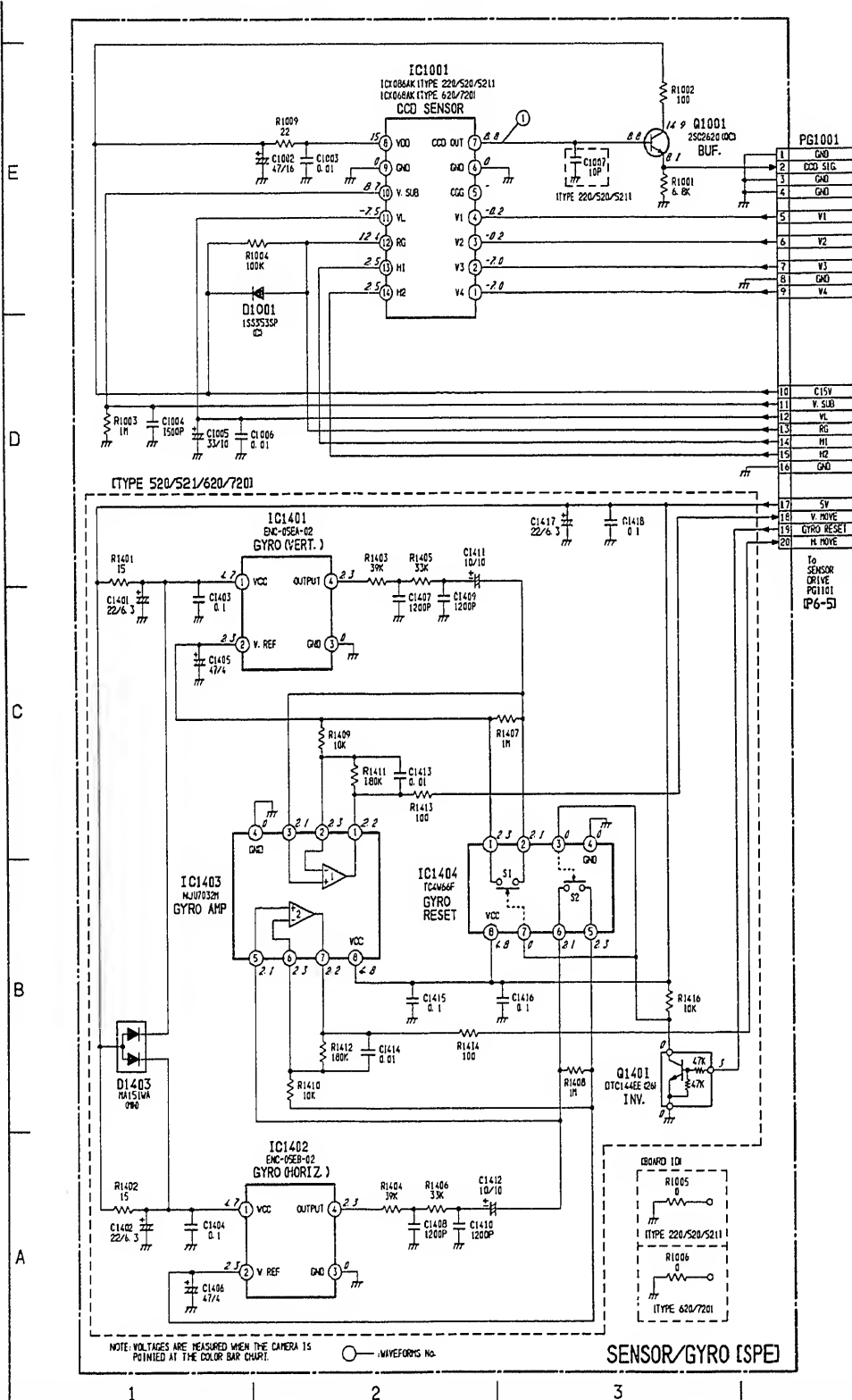
20 DT 20

21 GY 21

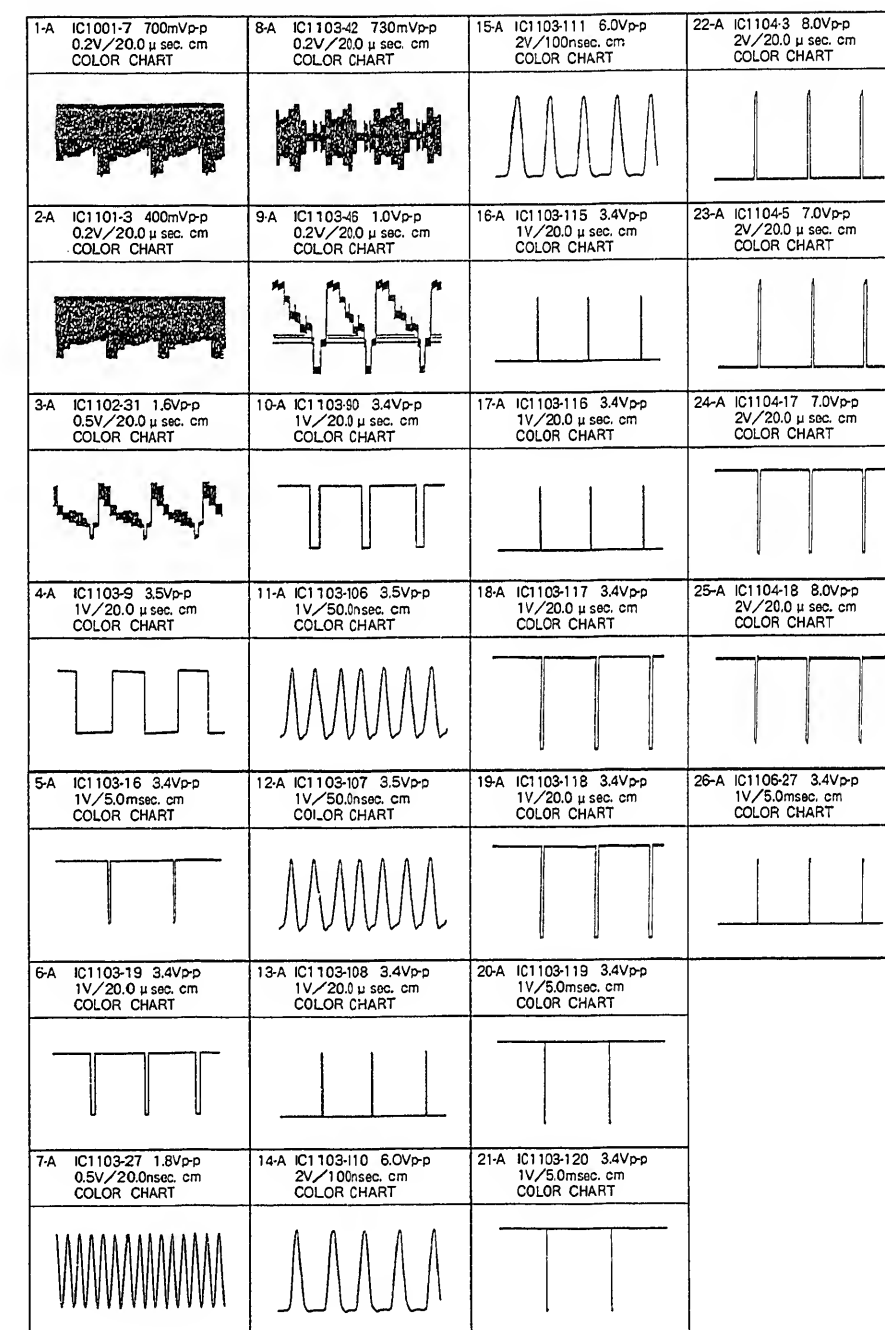
22 CLY 22

**LCD UNIT**

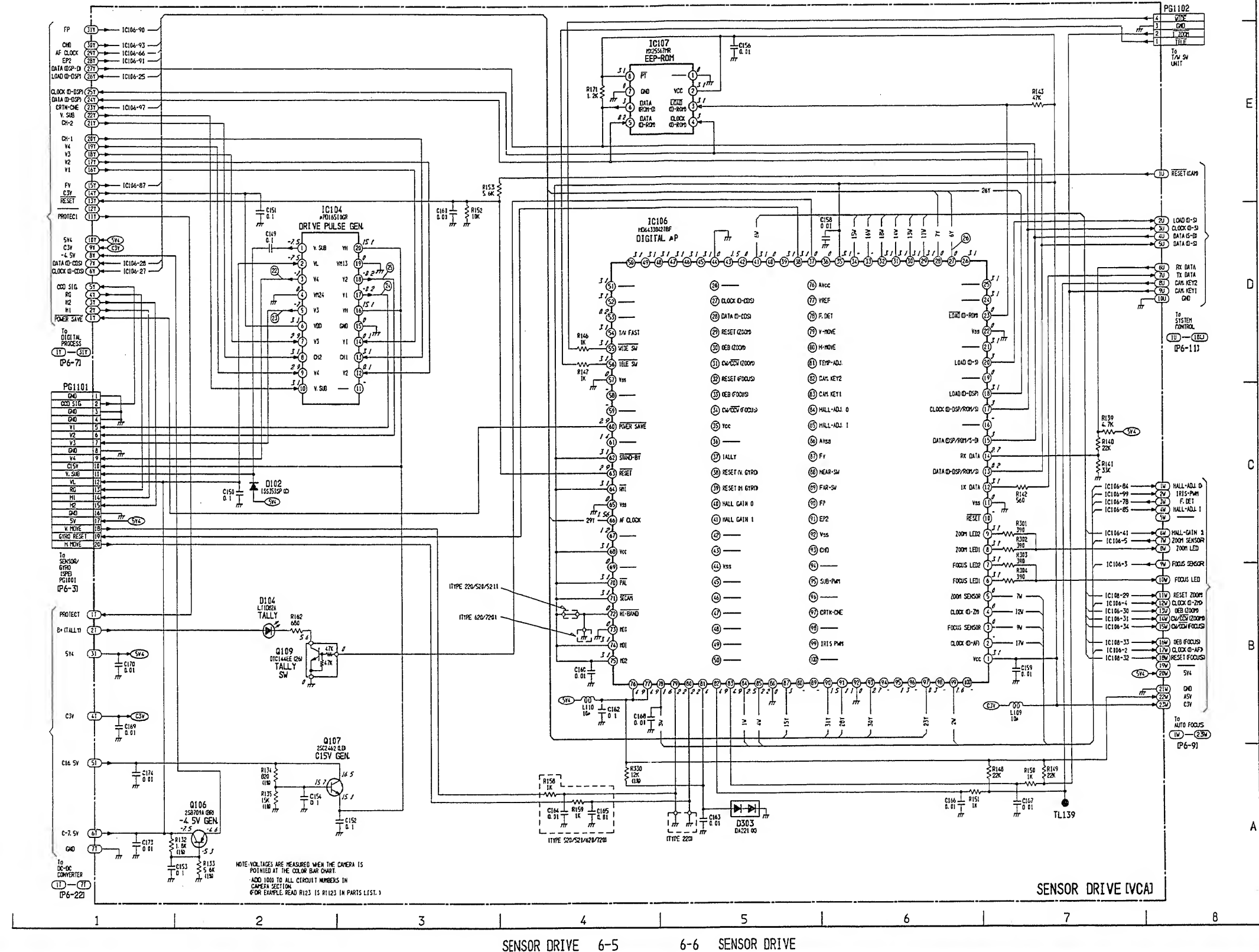
# SENSOR/GYRO [SPE] SCHEMATIC DIAGRAM



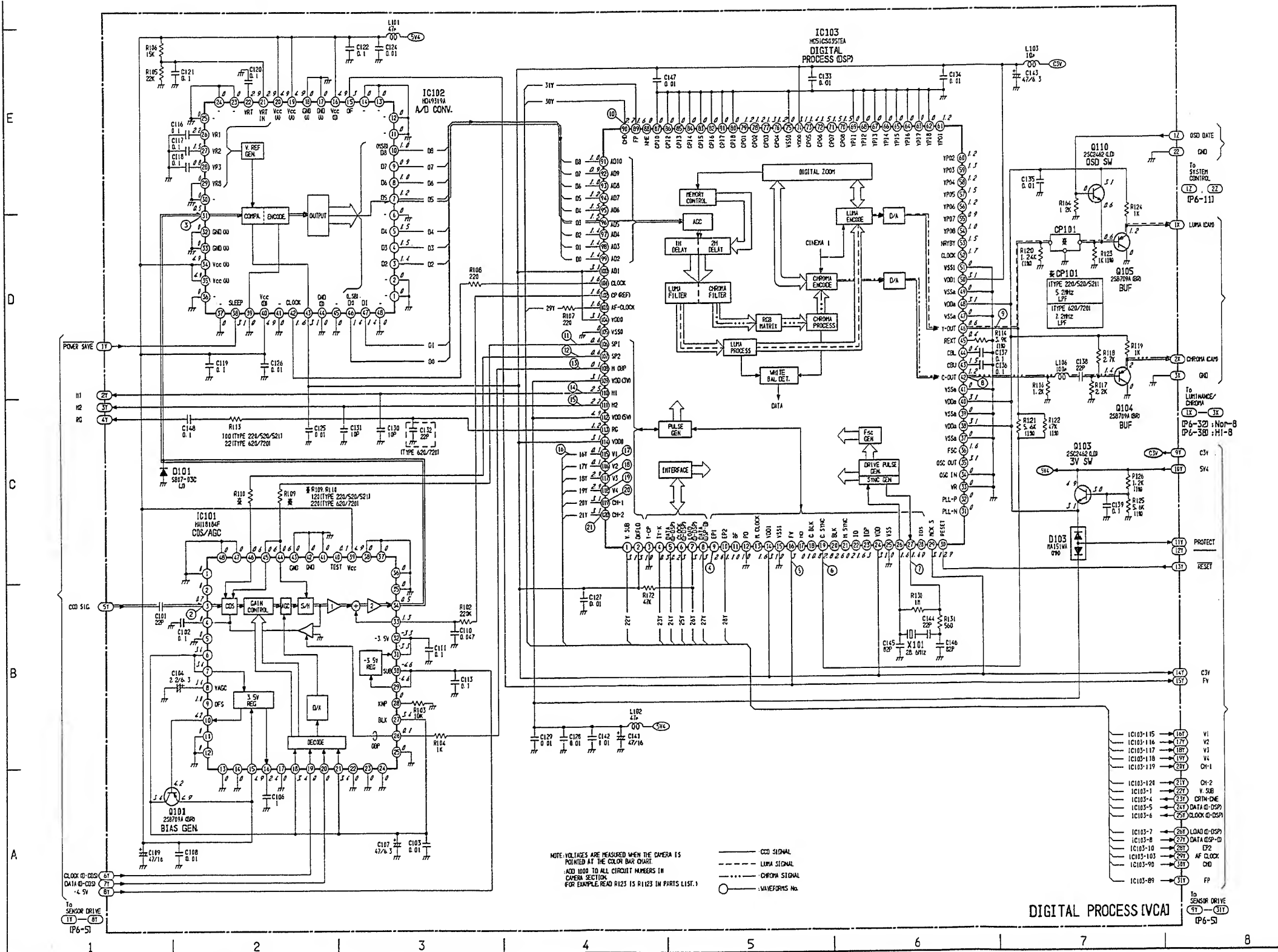
# CAMERA SECTION WAVEFORMS



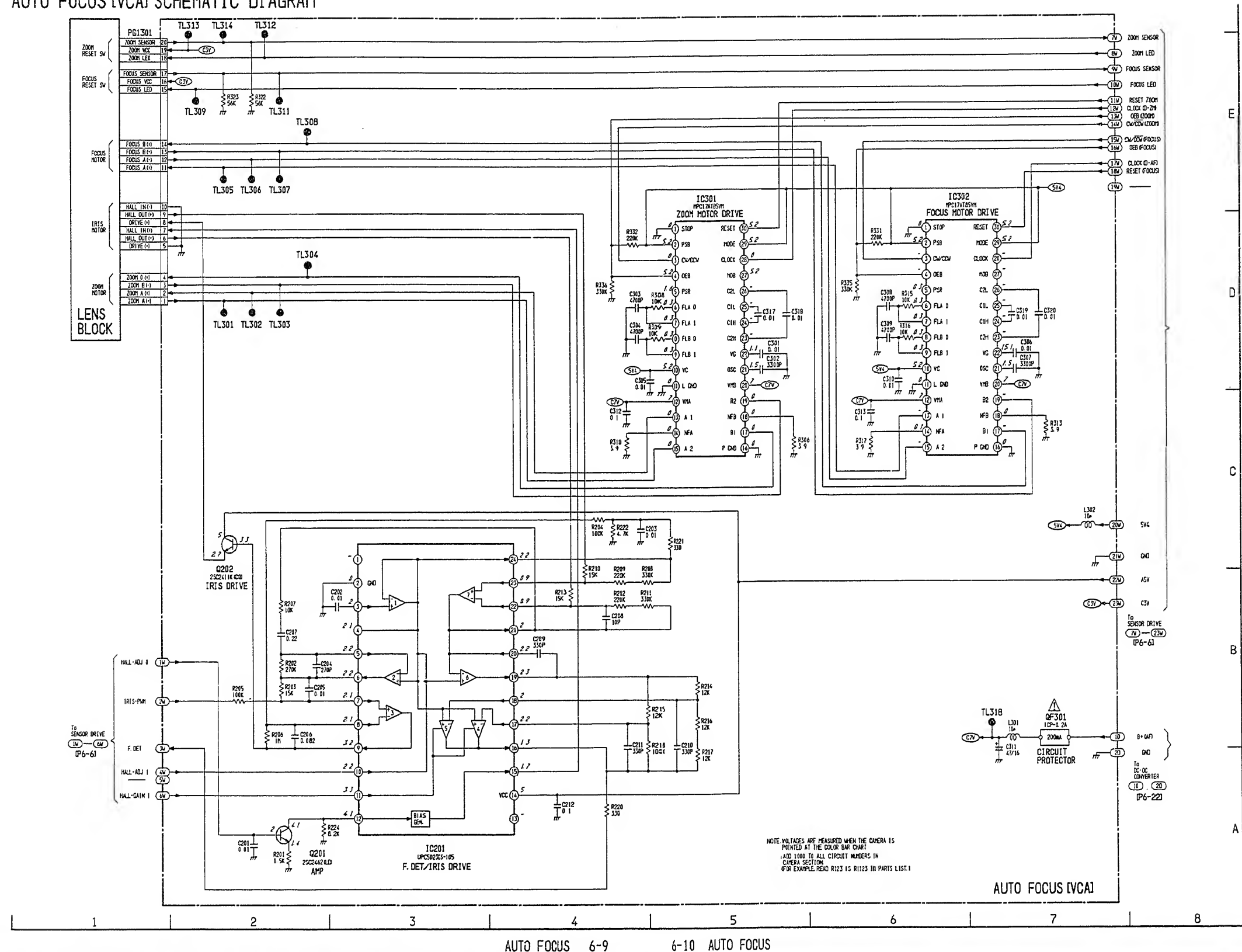
# SENSOR DRIVE [VCA] SCHEMATIC DIAGRAM



# DIGITAL PROCESS (VCA) SCHEMATIC DIAGRAM



# AUTO FOCUS [VCA] SCHEMATIC DIAGRAM

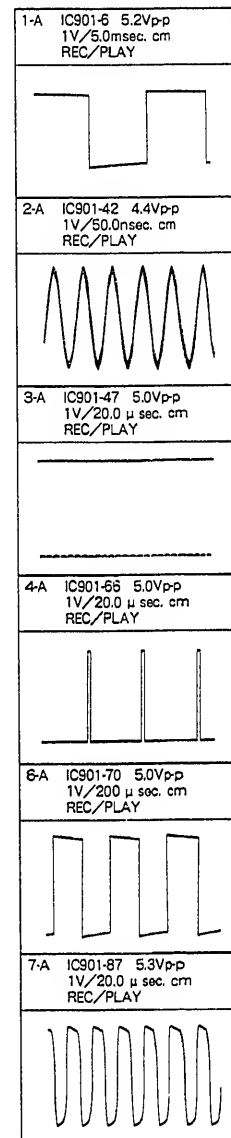




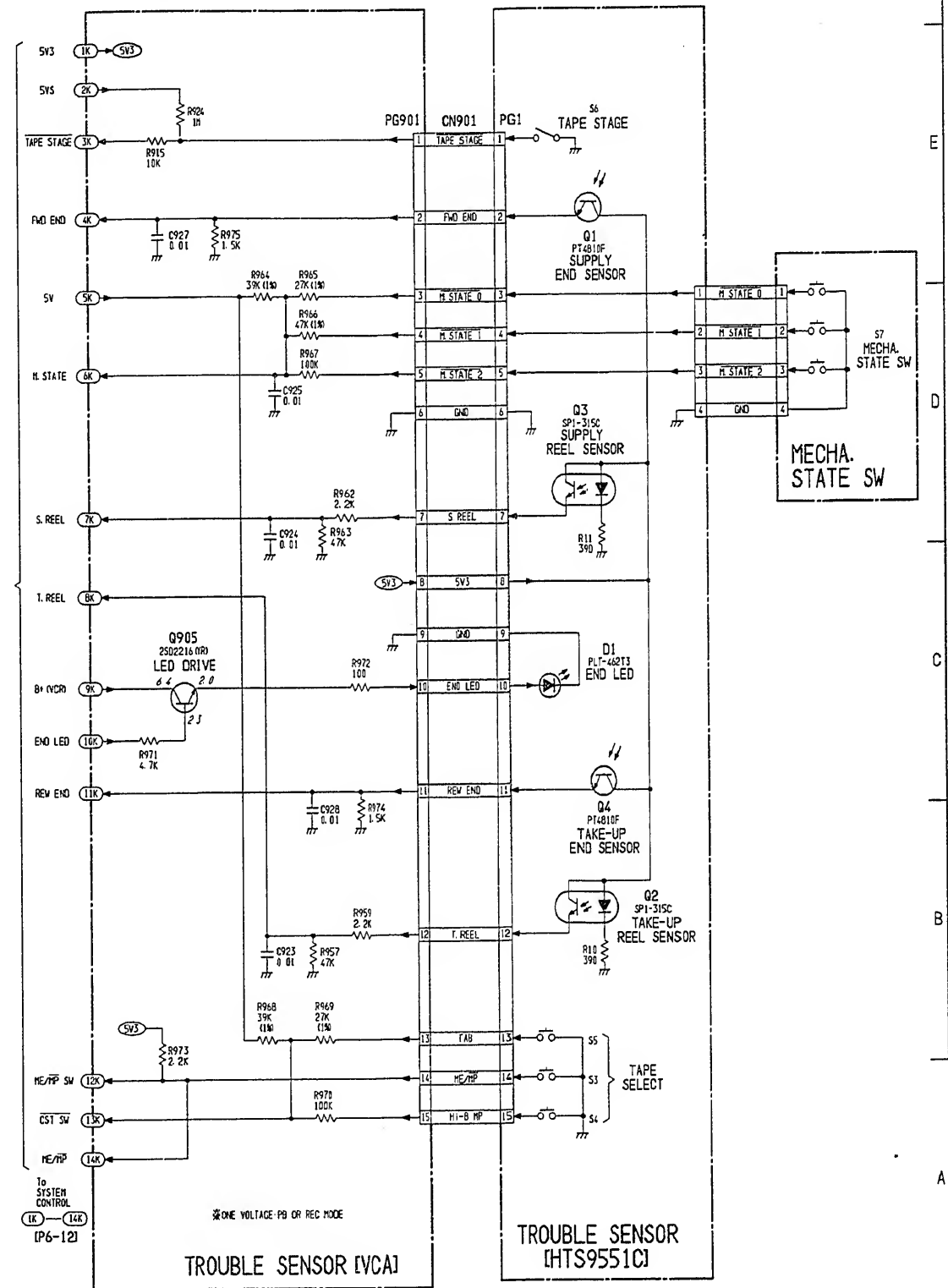




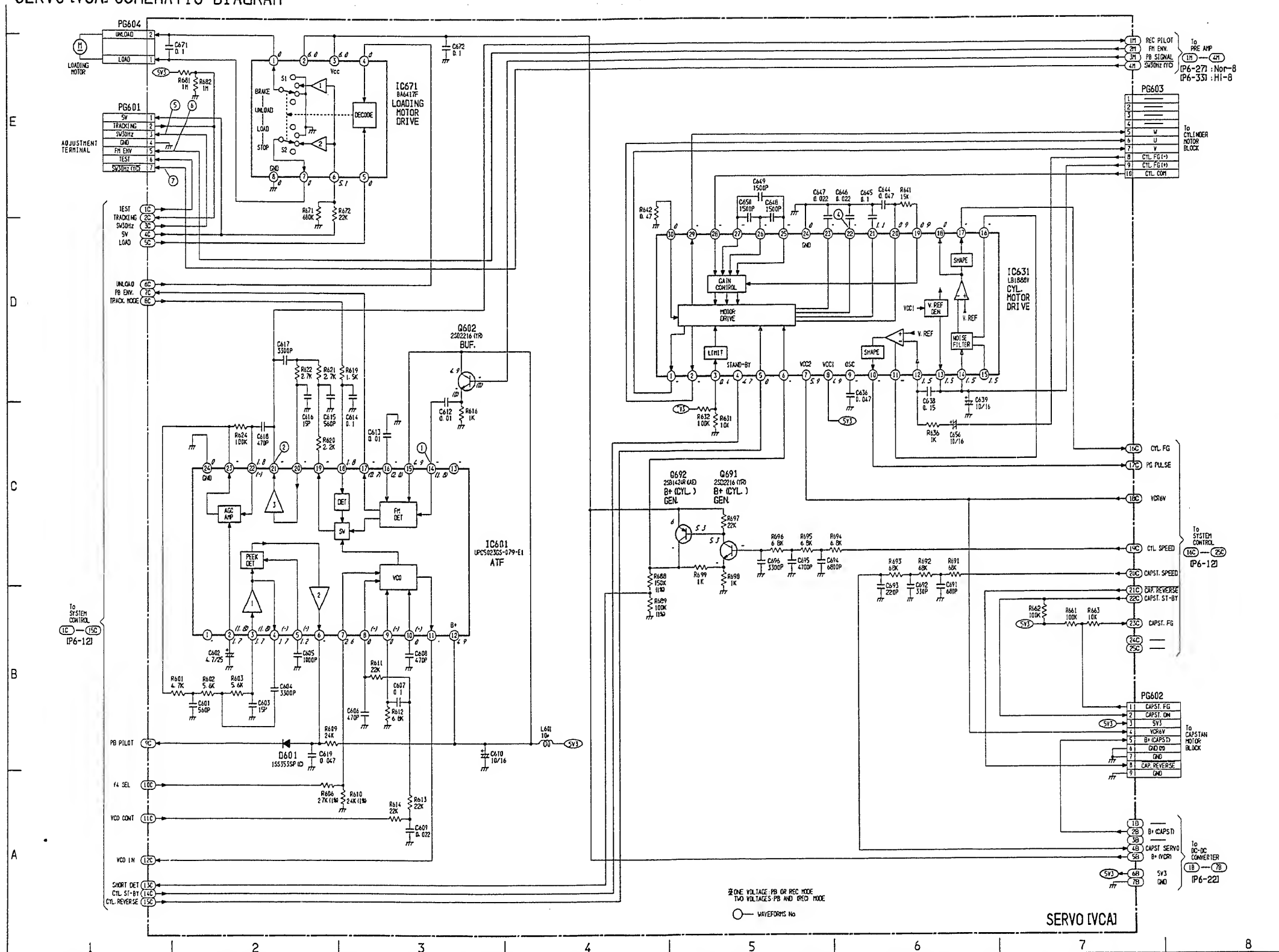
# SYSTEM CONTROL SECTION WAVEFORMS



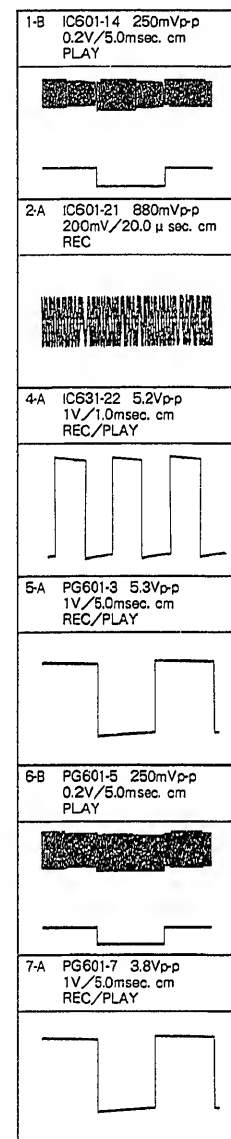
# TROUBLE SENSOR [VCA] SCHEMATIC DIAGRAM



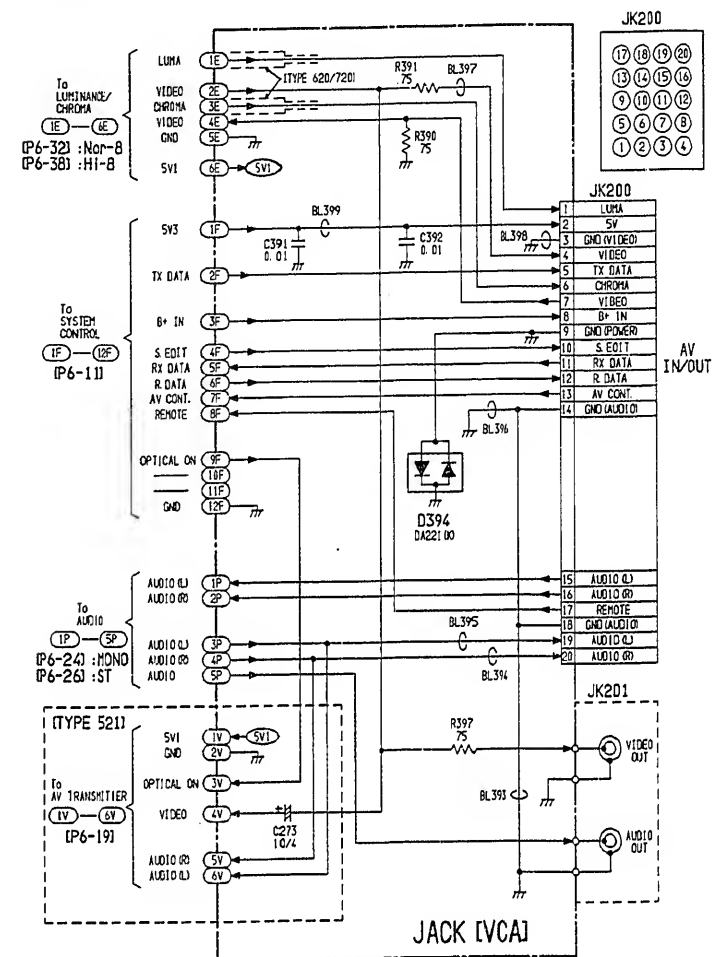
# SERVO [VCA] SCHEMATIC DIAGRAM



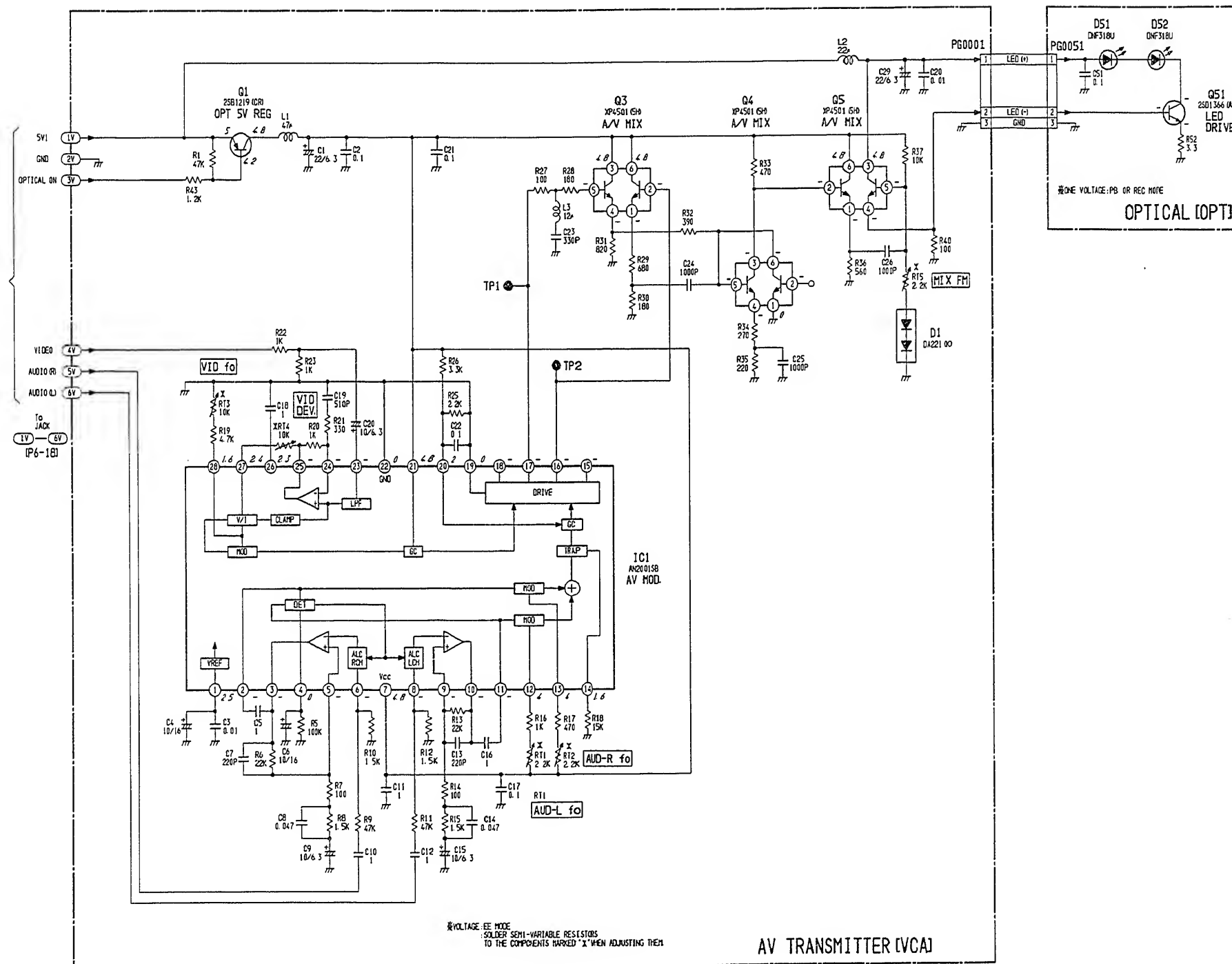
# SERVO SECTION WAVEFORMS



# JACK [VCA] SCHEMATIC DIAGRAM



# AV TRANSMITTER [VCA]. OPTICAL [OPT] SCHEMATIC DIAGRAMS -TYPE 521-



**DC-DC CONVERTER (VCA) / DC/SWITCH (DCS) SCHEMATIC DIAGRAMS**

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THIS COMPONENTS, USED ONLY THE SPECIFIED PARTS.

**VOLTAGES: DC LIGHT ON**

**DC/SWITCH (DCS)**

**DC-DC CONVERTER (VCA)**

**TO SYSTEM CONTROL**  
IP6-111  
1A - 7A

**TO AUDIO**  
IP6-231: MONO  
IP6-251: ST  
18 - 28

**TO PRE AMP**  
IP6-271: Nor-8  
IP6-331: HI-8  
19 - 29

**TO AUTO FOCUS**  
IP6-101  
10 - 20

**TO SERVO**  
IP6-161  
18 - 78

**PROTECT**  
11 - 31

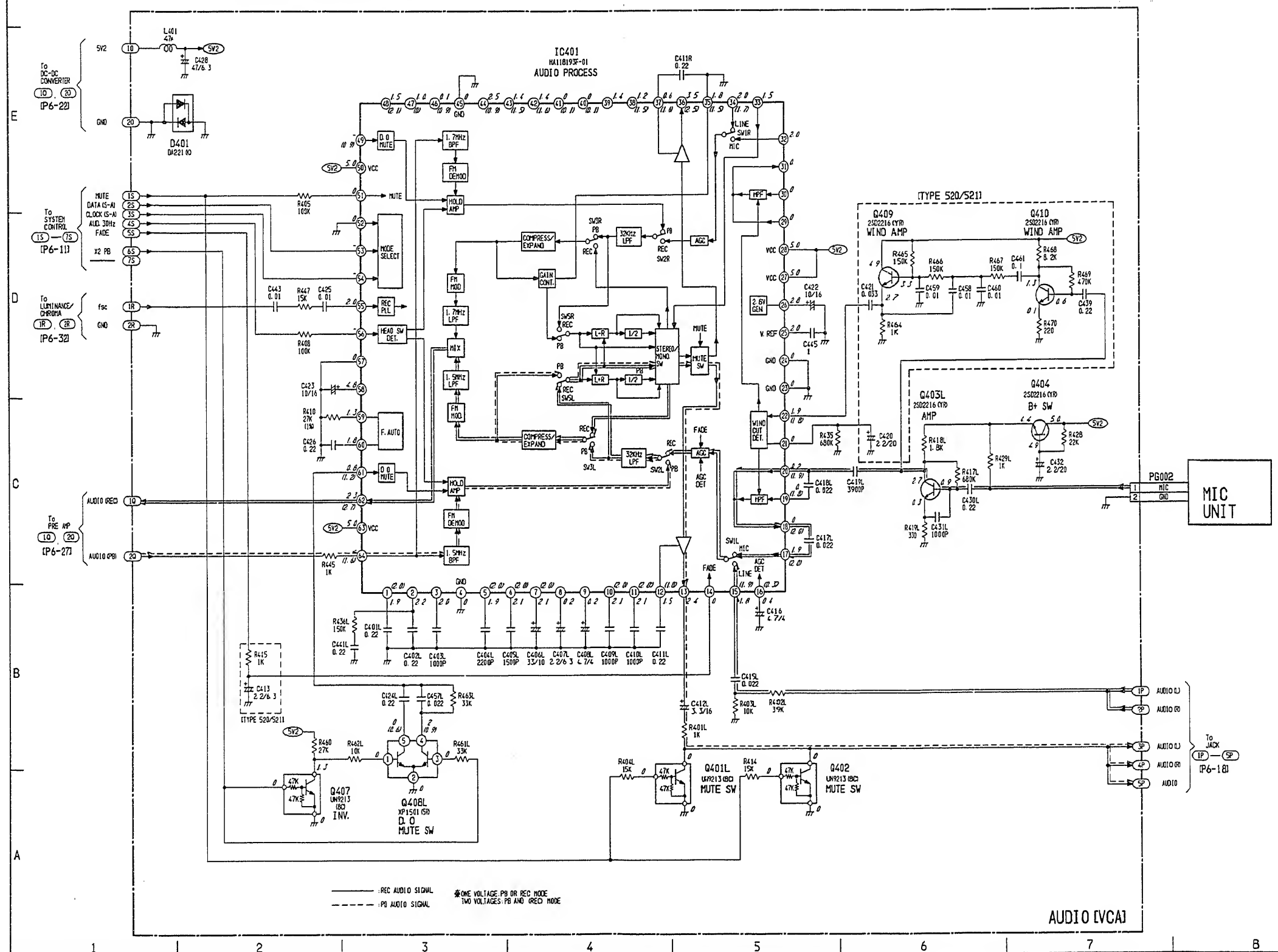
**TO SENSOR DRIVE**  
IP6-51  
11 - 71

**TO SYSTEM CONTROL**  
IP6-111  
BA - 10A  
VCR ON

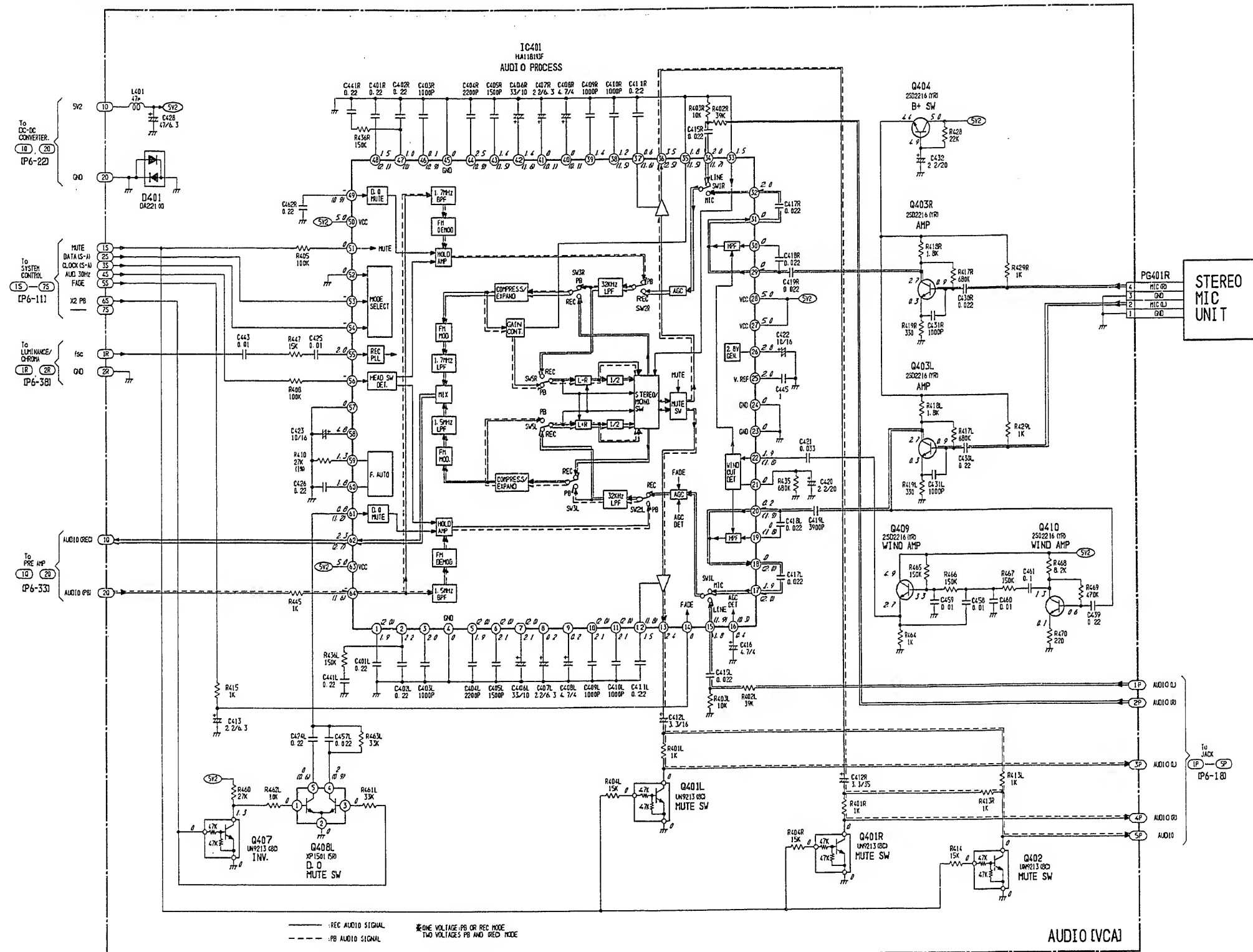
**DC-DC CONVERTER DC/SWITCH 6-21**

**6-22 DC-DC CONVERTER**

# AUDIO (VCA) SCHEMATIC DIAGRAM (MONAURAL MODEL) -TYPE 220, 520, 521-

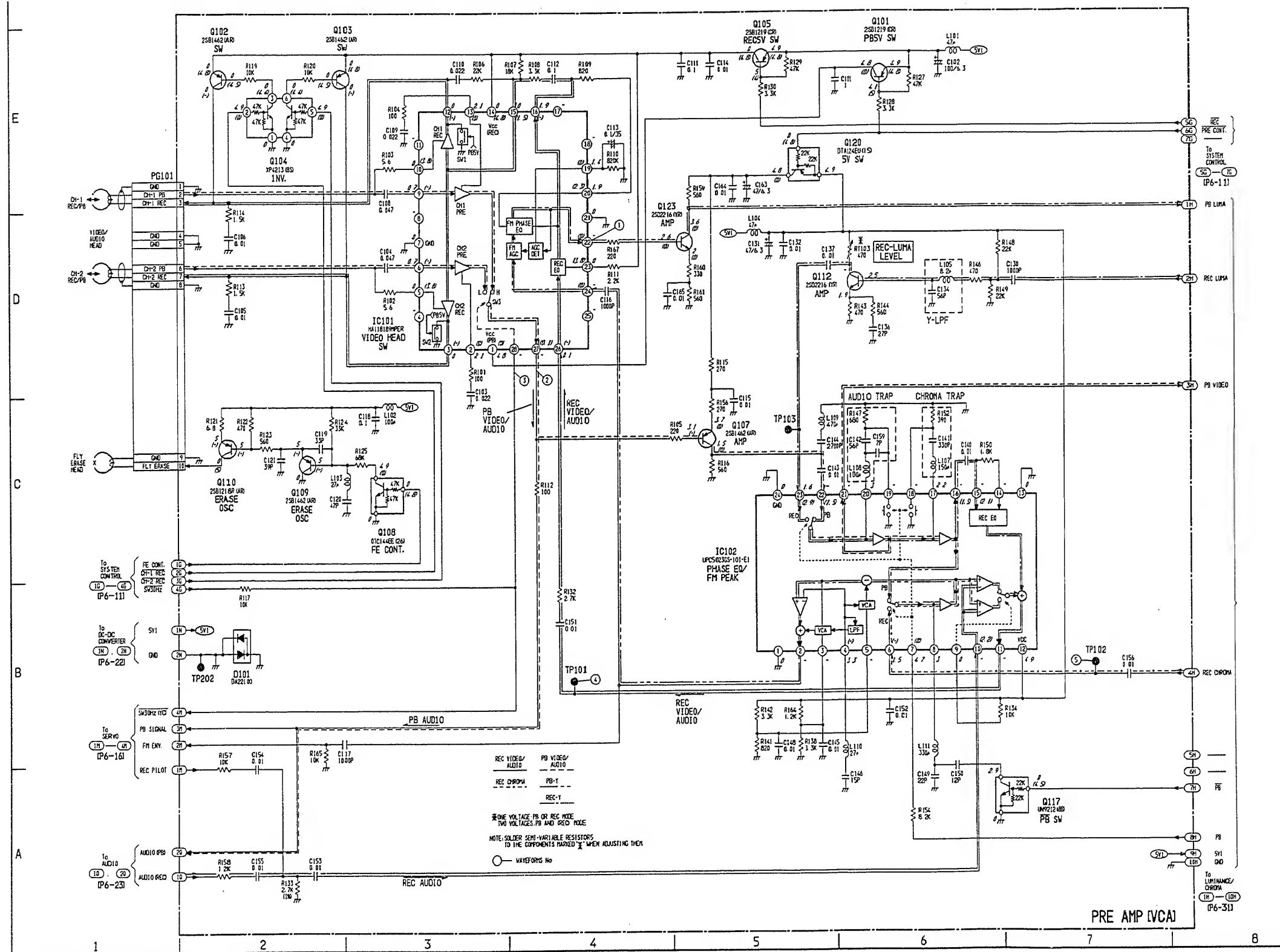


# AUDIO (VCA) SCHEMATIC DIAGRAM (STEREO MODEL) -TYPE 620, 720-

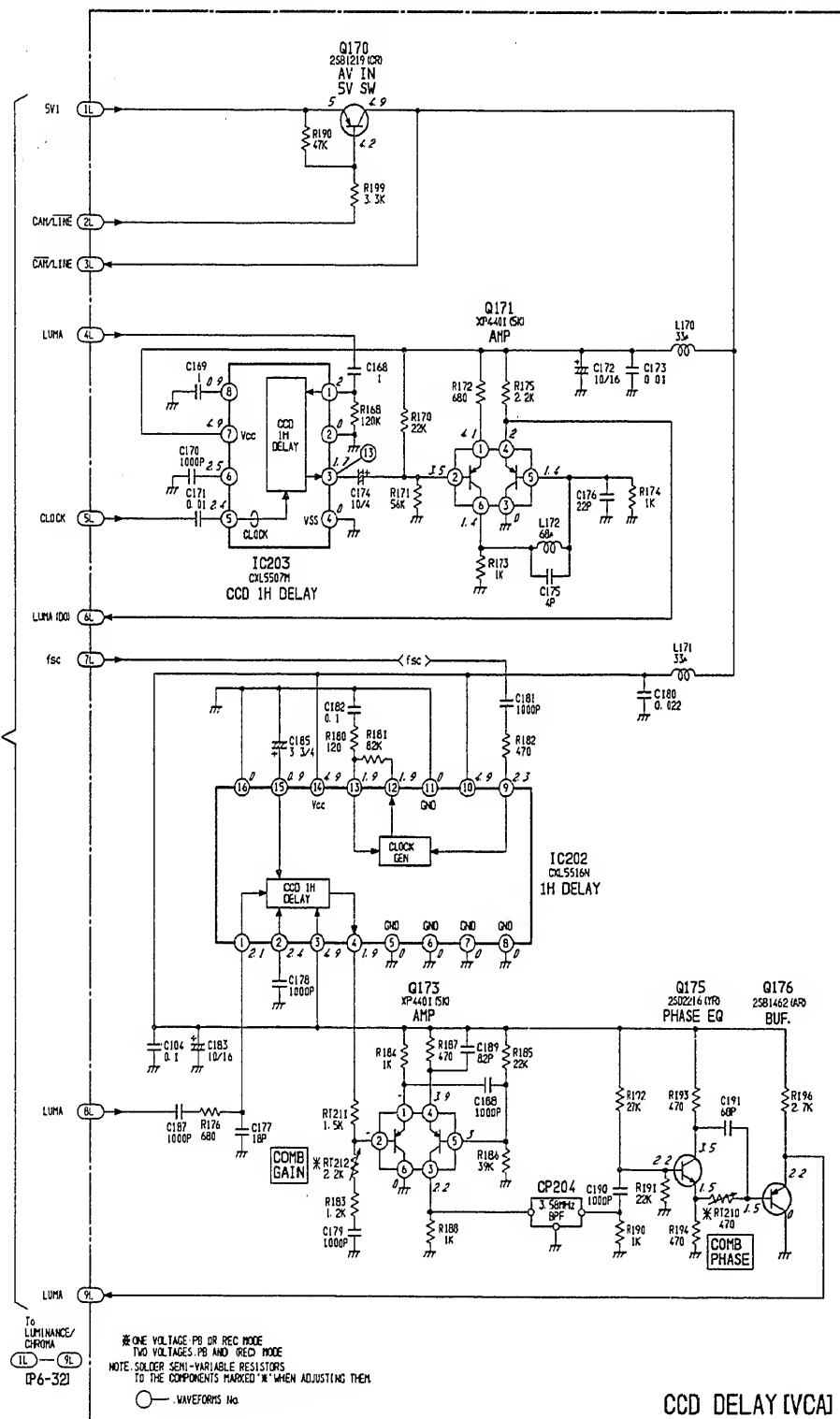




# PRE AMP (VCA) SCHEMATIC DIAGRAM (Nor. 8 MODEL) -TYPE 220. 520. 521-

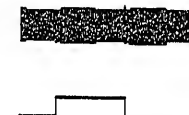
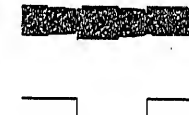
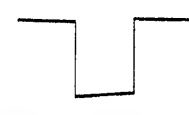
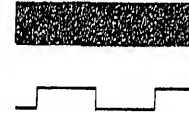



CCD DELAY (VCA) SCHEMATIC DIAGRAM (Nor. 8 MODEL) -TYPE 220, 520, 521-

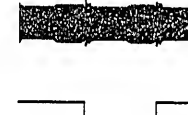


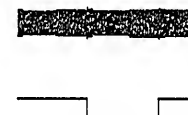





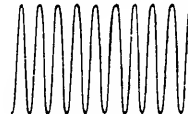

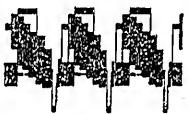
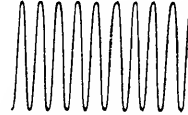


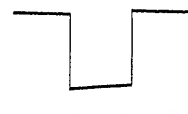





# VIDEO SECTION WAVEFORMS

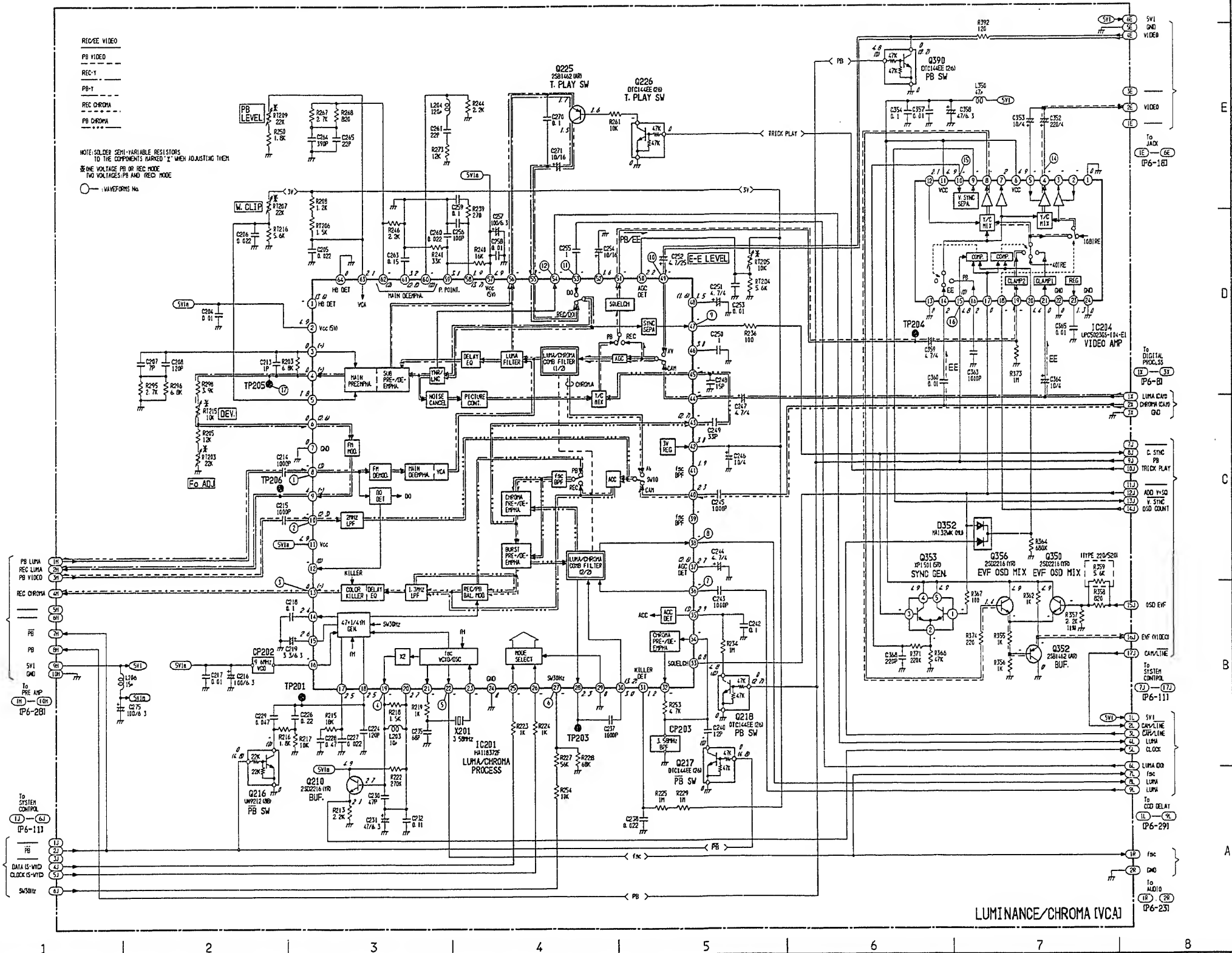
## PRE AMP WAVEFORMS

1-B IC101-22 340mVp-p 0.2V/5.0msec. cm PLAY	
2-B IC101-27 230mVp-p 0.1V/5.0msec. cm PLAY	
3-A IC101-28 3.8Vp-p 1V/5.0msec. cm REC/PLAY	
4-A TP101 220mVp-p 0.1V/5.0msec. cm REC	
5-A TP102 160mVp-p 50mV/20.0 μ sec. cm REC	

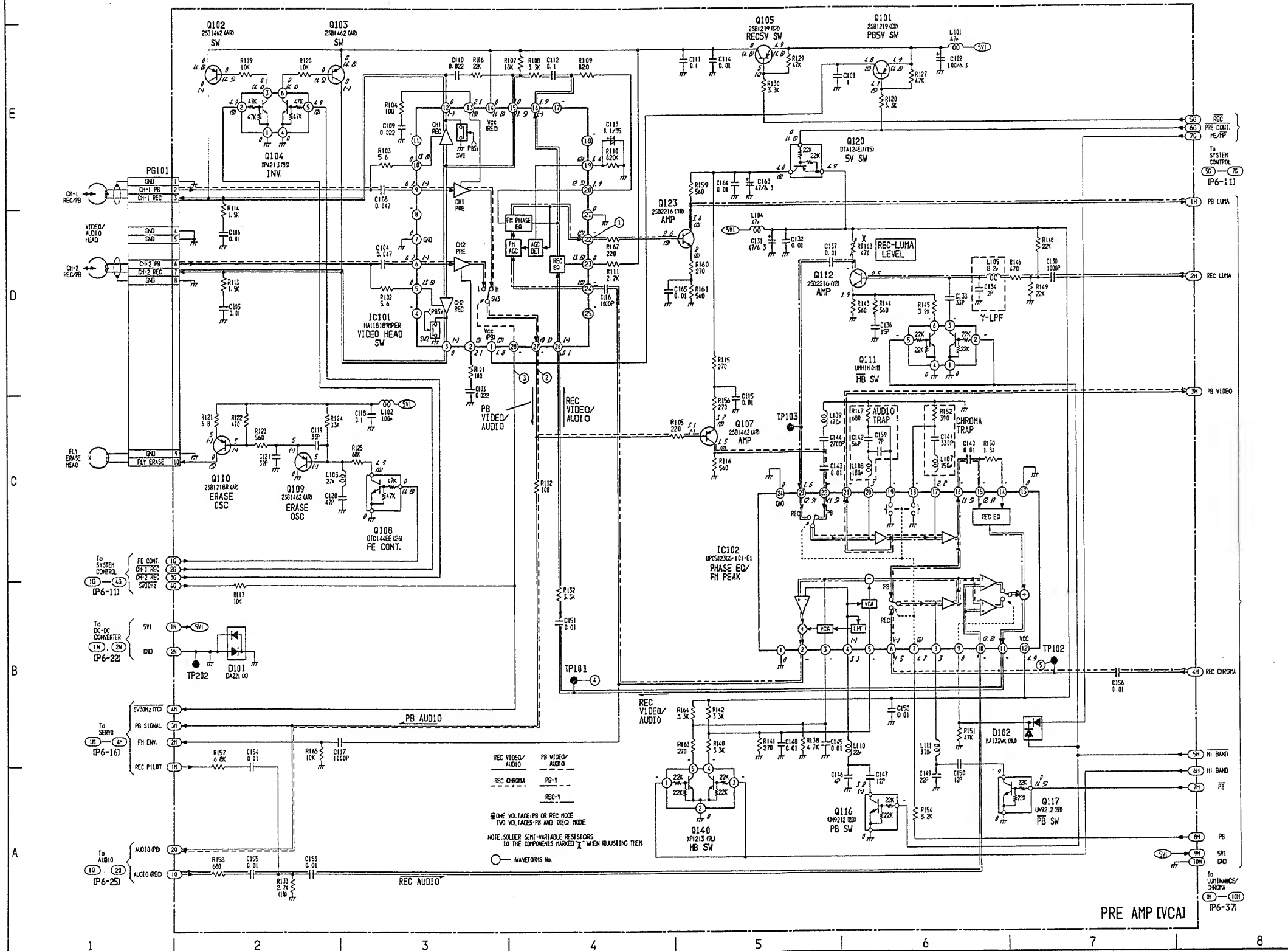
## LUMINANCE/CHROMA WAVEFORMS

1-B IC201-8 550mVp-p 0.2V/5.0msec. cm PLAY	7-B IC201-36 96mVp-p 20mV/20.0 μ sec. cm PLAY	13-A IC203-3 520mVp-p 0.1V/20.0 μ sec. cm REC/PLAY
		
2-B IC201-10 190mVp-p 0.1V/5.0msec. cm PLAY	8-A IC201-38 200mVp-p 50mV/20.0 μ sec. cm REC	14-A IC204-4 5.0Vp-p 1V/5.0msec. cm REC/PLAY
		
3-A IC201-13 360mVp-p 0.1V/20.0 μ sec. cm REC	8-B IC201-38 240mVp-p 50mV/20.0 μ sec. cm PLAY	15-A IC204-10 2.1Vp-p 0.5V/20.0 μ sec. cm REC/PLAY
		
4-A IC201-19 410mVp-p 0.1V/100nsec. cm REC/PLAY	9-A IC201-47 5.0Vp-p 1V/20.0 μ sec. cm REC/PLAY	16-A IC204-15 1.1Vp-p 0.2V/20.0 μ sec. cm REC/PLAY
		
5-A IC201-22 380mVp-p 0.1V/200nsec. cm REC/PLAY	10-A IC201-49 1Vp-p 0.2V/20.0 μ sec. cm REC	17-A TP205 1Vp-p 0.2V/20.0 μ sec. cm REC
		
6-A IC201-27 2.6Vp-p 0.5V/5.0msec. cm REC/PLAY	11-A IC201-53 350mVp-p 0.1V/20.0 μ sec. cm REC/PLAY	
		
7-A IC201-36 78mVp-p 20mV/20.0 μ sec. cm REC	12-A IC201-54 500mVp-p 0.1V/20.0 μ sec. cm REC/PLAY	
		

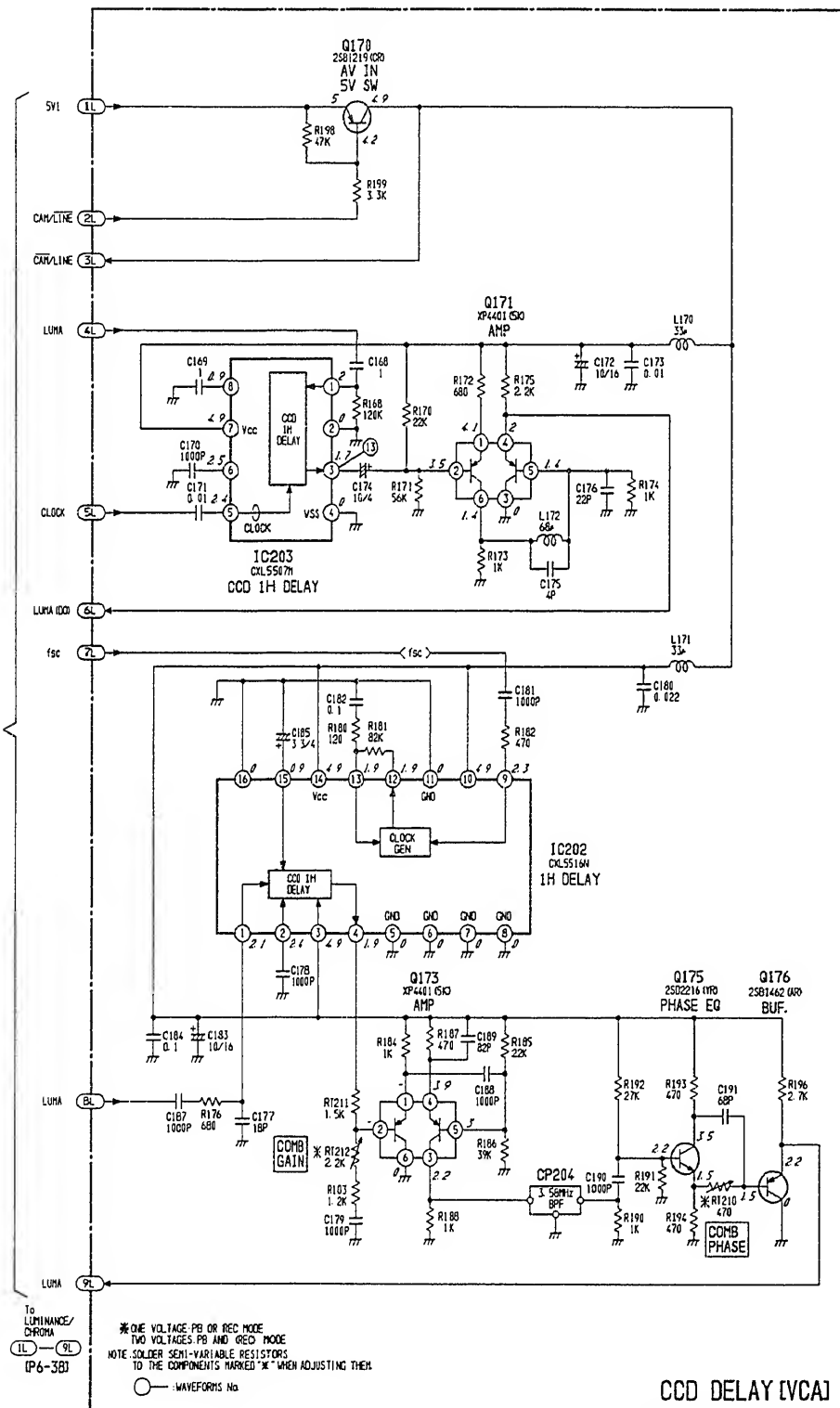
LUMINANCE/CHROMA [YCA] SCHEMATIC DIAGRAM (Nor. 8 MODEL) -TYPE 220. 520. 521-



# PRE AMP [VCA] SCHEMATIC DIAGRAM (Hi-8 MODEL) -TYPE 620, 720-



CCD DELAY (VCA) SCHEMATIC DIAGRAM (Hi-8 MODEL) -TYPE 620, 720-





# VIDEO SECTION WAVEFORMS

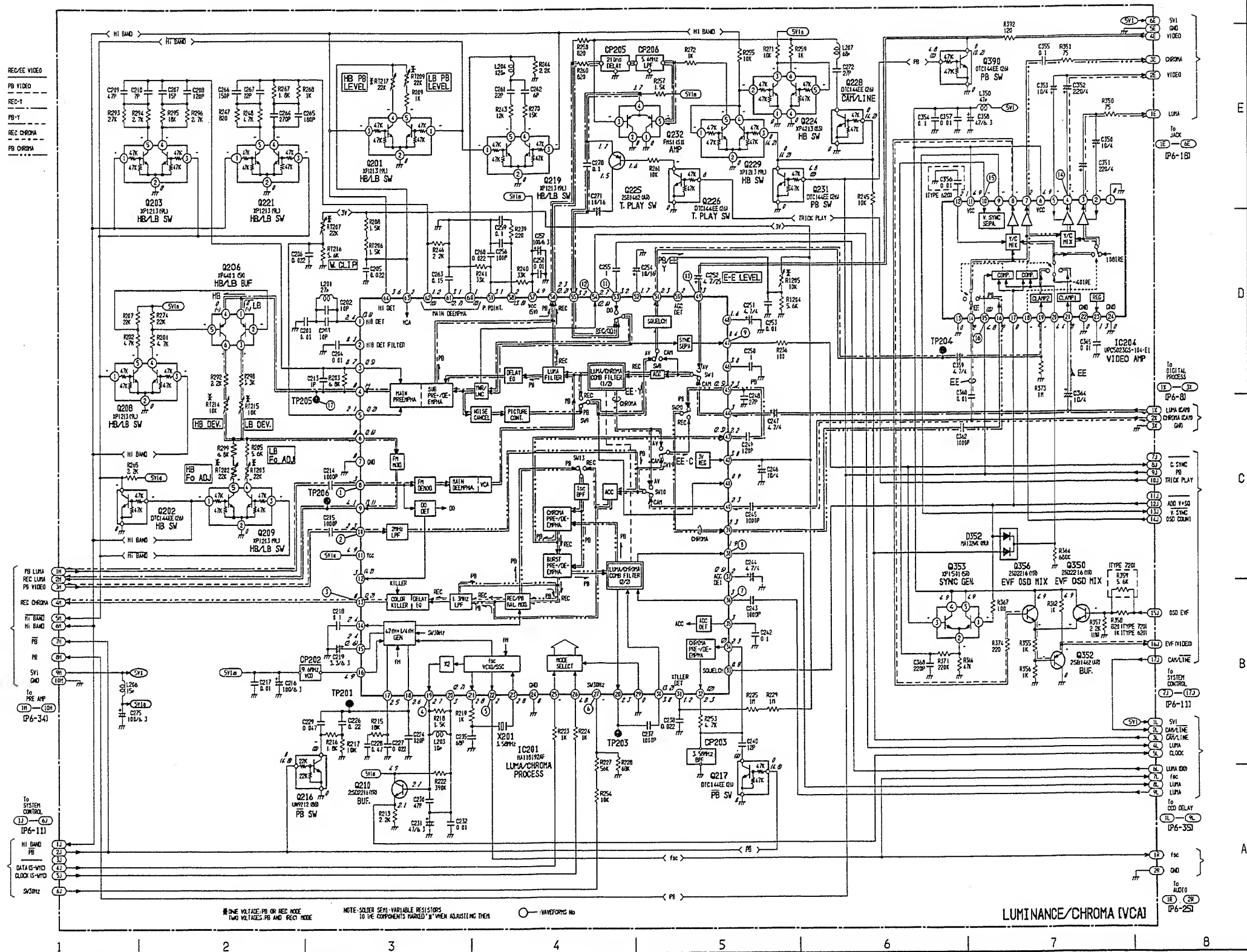
## PRE AMP WAVEFORMS

1-B IC101-22 340mVp-p 0.2V/5.0msec. cm PLAY	
2-B IC101-27 230mVp-p 0.1V/5.0msec. cm PLAY	
3-A IC101-28 3.8Vp-p 1V/5.0msec. cm REC/PLAY	
4-A TP101 220mVp-p 0.1V/5.0msec. cm REC	
5-A TP102 160mVp-p 50mV/20.0 μ sec. cm REC	

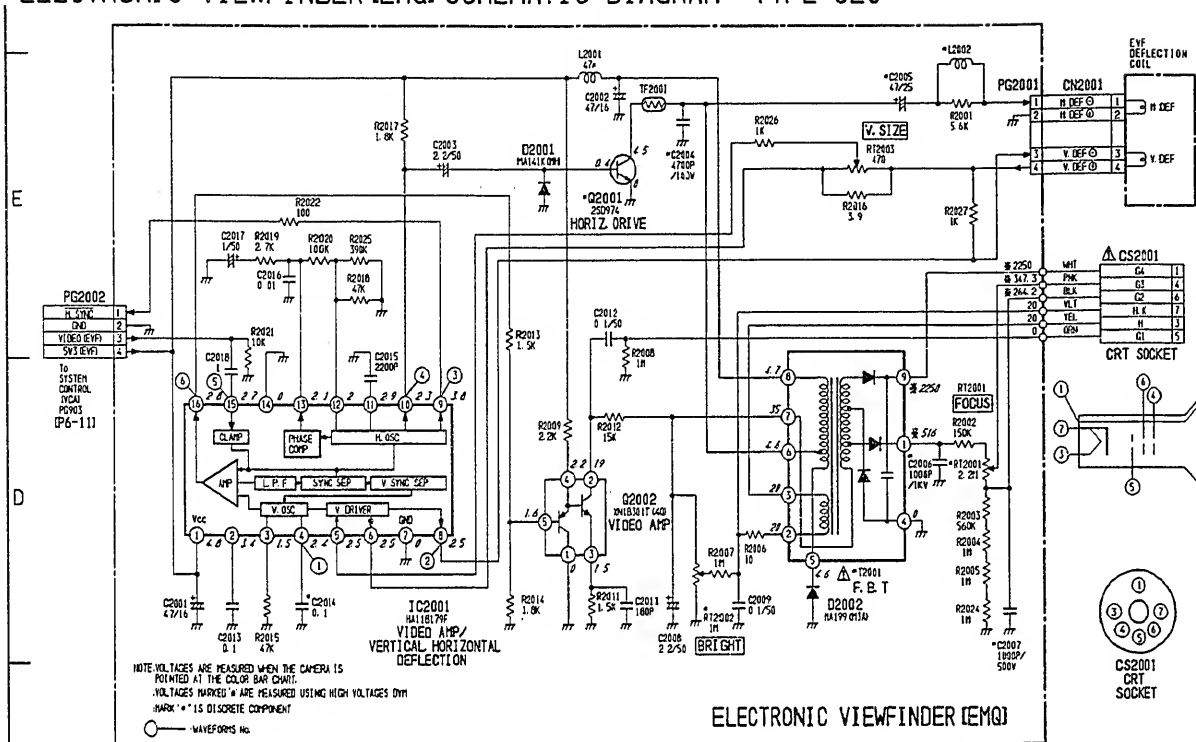
## LUMINANCE/CHROMA WAVEFORMS

1-B IC201-8 550mVp-p 0.2V/5.0msec. cm PLAY	7-B IC201-36 96mVp-p 20mV/20.0 μ sec. cm PLAY	13-A IC203-3 520mVp-p 0.1V/20.0 μ sec. cm REC/PLAY
2-B IC201-10 190mVp-p 0.1V/5.0msec. cm PLAY	8-A IC201-38 200mVp-p 50mV/20.0 μ sec. cm REC	14-A IC204-4 5.0Vp-p 1V/5.0msec. cm REC/PLAY
3-A IC201-13 360mVp-p 0.1V/20.0 μ sec. cm REC	8-B IC201-38 240mVp-p 50mV/20.0 μ sec. cm PLAY	15-A IC204-10 2.1Vp-p 0.5V/20.0 μ sec. cm REC/PLAY
4-A IC201-19 410mVp-p 0.1V/100nsec. cm REC/PLAY	9-A IC201-47 5.0Vp-p 1V/20.0 μ sec. cm REC/PLAY	16-A IC204-15 1.1Vp-p 0.2V/20.0 μ sec. cm REC/PLAY
5-A IC201-22 360mVp-p 0.1V/200nsec. cm REC/PLAY	10-A IC201-48 1Vp-p 0.2V/20.0 μ sec. cm REC	17-A TP205 1Vp-p 0.2V/20.0 μ sec. cm REC
6-A IC201-27 2.6Vp-p 0.5V/5.0msec. cm REC/PLAY	11-A IC201-53 350mVp-p 0.1V/20.0 μ sec. cm REC/PLAY	
7-A IC201-36 78mVp-p 20mV/20.0 μ sec. cm REC	12-A IC201-54 500mVp-p 0.1V/20.0 μ sec. cm REC/PLAY	

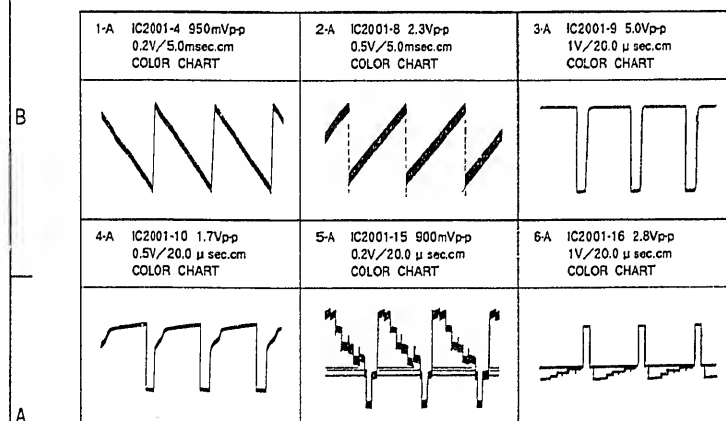
## LUMINANCE/CHROMA [VCA] SCHEMATIC DIAGRAM (Hi-8 MODEL)-TYPE 620, 720-



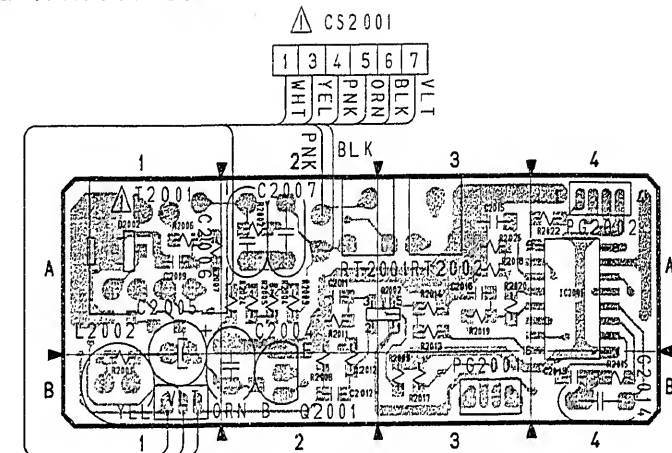
# ELECTRONIC VIEWFINDER (EMQ) SCHEMATIC DIAGRAM -TYPE 620-



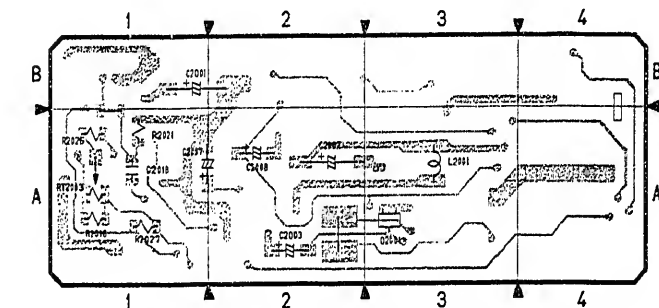
## ELECTRONIC VIEWFINDER WAVEFORMS



## EMQ CIRCUIT BOARD



EMQ[ELECTRONIC VIEWFINDER]  
-SIDE A-  
[PATTERN No.152035-1]



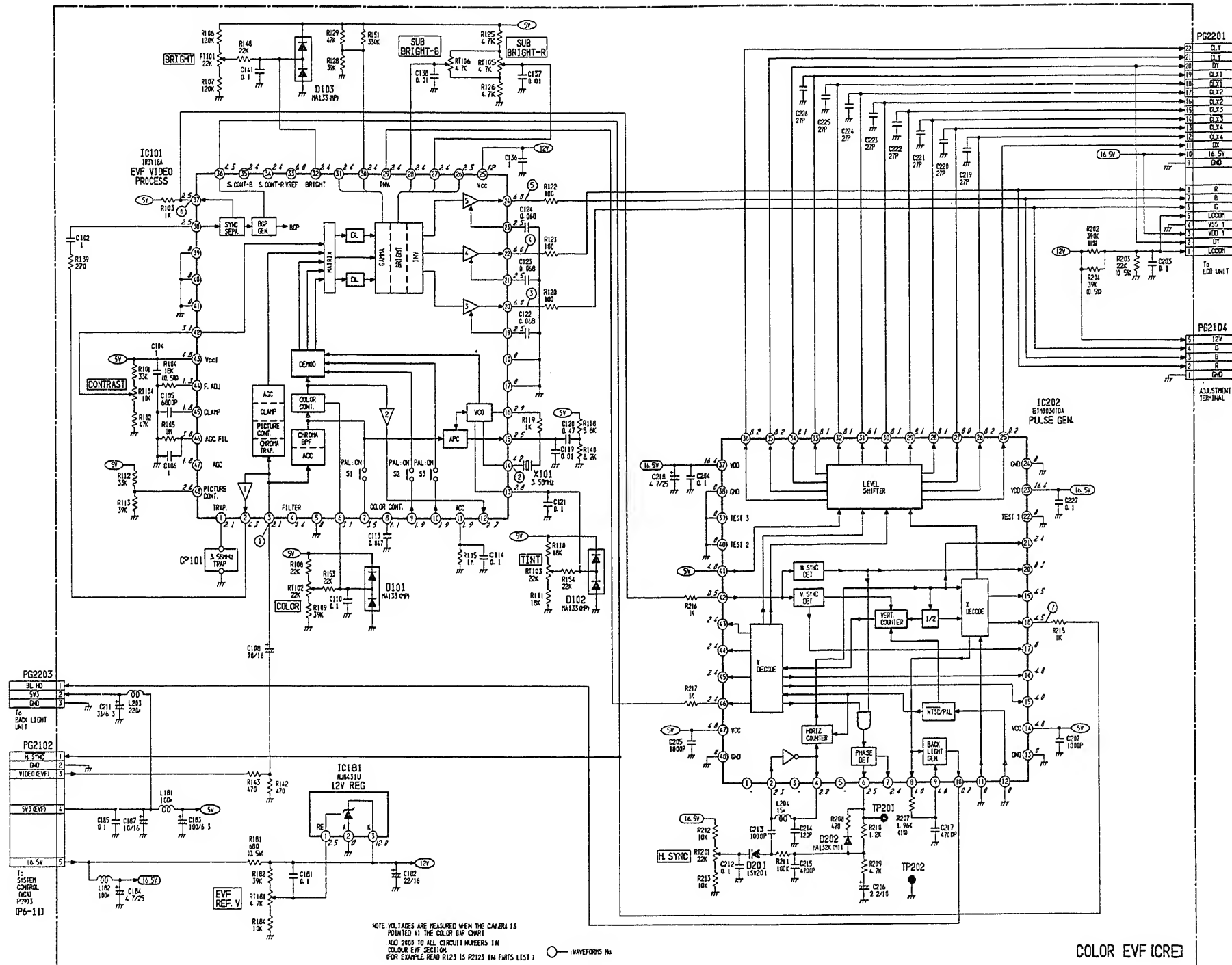
EMQ[ELECTRONIC VIEWFINDER]  
-SIDE B-

## IDENTIFICATION OF PARTS LOCATION

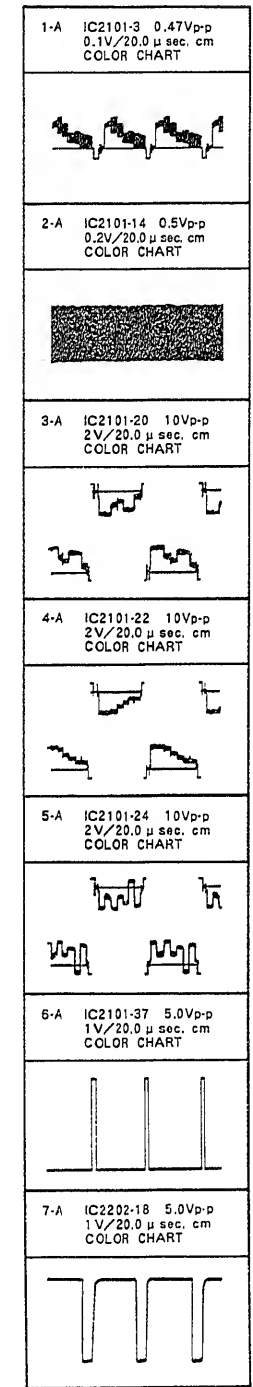
### EVF [ELECTRONIC VIEWFINDER]

Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location
C2001	B-1B	C2012	A-2B	R2001	A-1B	R2013	A-3A	R2025	A-3A		
C2002	B-2A	C2013	A-4B	R2002	A-2A	R2014	A-3A	R2026	B-1A		
C2003	B-2A	C2014	A-4B	L2001	B-3A	R2003	A-2A	R2015	A-4B	R2027	B-1A
C2004	A-2B	C2015	A-3A	L2002	A-1B	R2004	A-2A	R2016	B-1A	RT	
C2005	A-1A	C2016	A-3A	PG		R2005	A-2A	R2017	A-3B	RT2001	A-2A
C2006	A-2A	C2017	B-2A	PG2001	A-3B	R2006	A-1A	R2018	A-3A	RT2002	A-3A
C2007	A-2A	C2018	B-1A	PG2002	A-4A	R2007	A-1A	R2019	A-3A	RT2003	B-1A
C2008	B-2A	D		Q		R2008	A-2B	R2020	A-3A	T	
C2009	A-1A	D2001	B-3A	Q2001	A-2B	R2009	A-3B	R2021	B-1A	T2001	A-1A
C2011	A-2A	D2002	A-1A	Q2002	A-3A	R2011	A-2A	R2022	A-4A		
		IC		R		R2012	A-2B	R2024	A-2A		

# COLOR EVF (CRE) SCHEMATIC DIAGRAM -TYPE 220. 520. 521. 720-

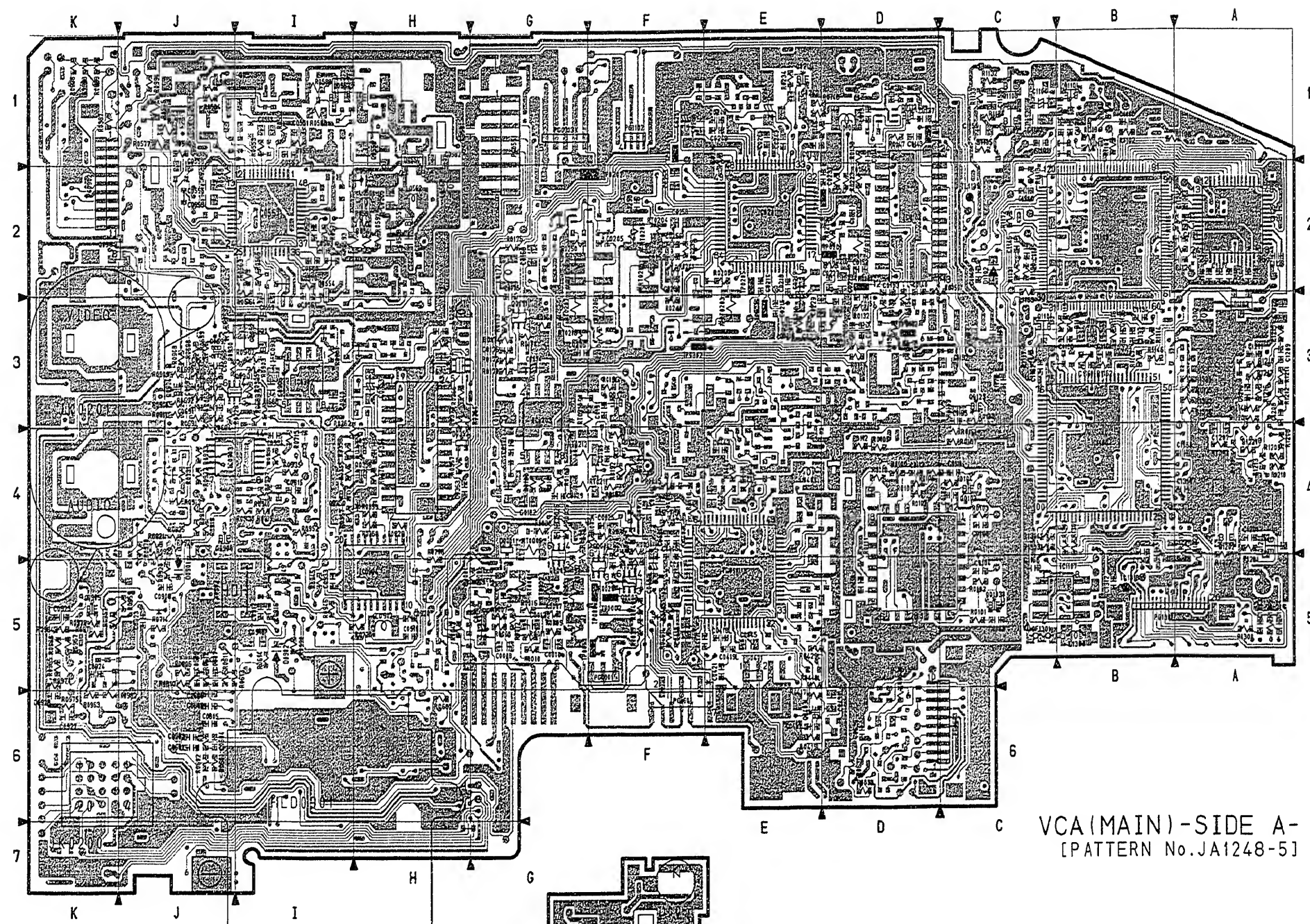


## WAVEFORMS





VCA OPT CIRCUIT BOARDS -SIDE A-  
-TYPE 220, 520, 521. -



NOTE : SOLDER SEMI-VARIABLE RESISTORS TO THE COMPONENTS  
MARKED "\*" WHEN ADJUSTING THEM.

MAIN [VCA] 1/2

DIFFERENCE TABLE  
VCA[MAIN] - SIDE A -

NOTE: This table lists the different components marked with asterisks(\*) in the circuit board diagrams.

SYMBOL No.	TYPE220	TYPE520	TYPE521
C0008	x	x	○
C0009	x	x	○
C0010	x	x	○
C0012	x	x	○
C0017	x	x	○
C0024	x	x	○
C0025	x	x	○
C0026	x	x	○
C0421	x	○	○
D0001	x	x	○
PG0001	x	x	○
Q0001	x	x	○
Q0003	x	x	○
Q0004	x	x	○
Q0005	x	x	○
R0001	x	x	○
R0007	x	x	○
R0008	x	x	○
R0009	x	x	○
R0010	x	x	○
R0011	x	x	○
R0012	x	x	○
R0016	x	x	○
R0017	x	x	○
R0029	x	x	○
R0030	x	x	○
R0031	x	x	○
R0032	x	x	○
R0033	x	x	○
R0034	x	x	○
R0035	x	x	○
R0036	x	x	○
R0037	x	x	○
R0038	x	x	JUMPER
R0039	x	x	JUMPER
R0040	x	x	○
R0043	x	x	○
R0359	○	○	x
R0415	x	○	○
R0714	x	x	○
RT0001	x	x	○
RT0002	x	x	○
RT0003	x	x	○
RT0004	x	x	○
RT0005	x	x	○

Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location	Symbl No.	Parts Location
BL		C0168	A-2G	C0247	B-1G	C040Q8R	A-50	C0571	B-2I	C0911	B-3I	C1142	B-2A	C1320	B-4B	L		D0102	A-4C	D0557	A-2H	R0143	A-10	R0218	B-2E				
BLO393	B-4K	C0169	B-3G	C0248	A-1E	C040Q9L	A-5F	C0573	B-3J	C0915	A-4I	C1143	B-2A	CP		L0101	B-40	D0103	A-5C	D0602	B-6H	R0144	A-1D	R0219	A-2D				
BLO394	B-TJ	C0170	B-4G	C0249	A-1E	C040Q9R	A-5D	C0577	B-2I	C0916	A-5I	C1144	B-3C	CP0202	B-2D	L0102	B-50	D0104	B-4C	D0691	A-3J	R0145	A-10	R0222	B-2E				
BLO395	B-7K	C0171	A-4G	C0250	A-1F	C041DL	A-5F	C0579	B-1J	C0917	A-5I	C1145	A-2C	CP0203	B-2D	L0103	B-50	D0105	B-4D	D0692	A-3I	R0146	A-1E	R0223	A-2D				
BLO396	B-7K	C0172	B-3G	C0251	A-1F	C041OR	A-5E	C0581	B-1I	C0918	A-5I	C1146	A-2C	CP0204	B-3F	L0104	B-3C	D0107	B-1D	D0901	A-3J	R0147	A-10	R0224	A-2D				
BLO397	R-6J	C0173	B-4G	C0252	B-1G	C0411L	A-5F	C0582	A-1H	C0919	A-5H	C1147	B-2C	CP0205	B-2F	L0105	A-1D	D0108	B-5D	D0903	A-2J	R0148	A-1E	R0225	B-1E				
BLO398	B-6J	C0174	A-3G	C0253	A-2F	C0411R	A-5E	C0585	A-2H	C0920	A-5H	C1148	A-2C	CP0206	B-1F	L0107	B-2C	D0109	B-5D	D0904	A-3J	R0149	A-1E	R0227	B-2E				
BLO399	B-6J	C0175	A-2G	C0254	B-2G	C0412L	B-5F	C0586	A-2H	C0921	B-5H	C1149	A-2C	CP1101	B-3B	L0108	B-2C	D0110	B-5C	D0905	A-5K	R0150	A-2D	R0228	B-2E				
C		C0176	A-3G	C0255	A-2F	C0412R	B-5E	C0588	A-2H	C0923	A-5J	C1150	B-2B	D		L0109	B-1D	D0111	A-1D	D0908	A-4J	R0151	A-3D	R0229	B-1E				
C0101	B-4D	C0177	B-4F	C0256	A-2F	C0413	B-5F	C0589	A-2H	C0924	A-5K	C1151	B-2B	D0101	A-4D	L0110	B-2D	D0112	A-1O	D1011	A-1B	R0152	B-2C	R0236	A-1E				
C0102	B-3D	C0178	B-4F	C0257	B-3G	C0415L	B-5F	C0590	B-1I	C0925	A-5K	C1152	B-2B	D0102	A-3D	L0111	B-2C	D0116	B-1D	D1103	B-3B	R0154	A-3D	R0239	A-2F				
C0103	A-5C	C0179	A-4G	C0258	A-2F	C0415R	A-5E	C0591	A-1H	C0927	A-6K	C1153	A-1C	D0352	A-4H	L0170	B-3G	D0117	B-3D	D1104	A-3C	R0156	B-1D	R0240	A-3F				
C0104	A-5C	C0180	B-4G	C0259	A-2F	C0416	A-5F	C0601	A-6J	C0928	A-6K	C1154	A-1C	D0394	B-7J	L0171	A-3G	D0120	B-3D	D1105	B-3C	R0157	A-3D	R0241	A-2F				
C0105	B-4D	C0181	B-4G	C0260	A-2F	C0417L	A-5F	C0602	B-6J	C0930	B-1G	C1156	A-5C	D0401	B-5E	L0172	A-2G	D0123	A-3C	D1106	A-1C	R0158	A-3D	R0243	B-2G				
C0106	B-4C	C0182	A-4G	C0261	B-2G	C0417R	A-5E	C0603	A-6J	C0931	A-3I	C1158	A-4A	D0551	B-2H	L0201	B-3F	D0140	B-2D	D1107	A-1C	R0159	A-3C	R0244	B-2F				
C0108	A-4C	C0183	B-4G	C0262	B-2G	C0418L	A-5E	C0604	A-6J	C0932	B-5H	C1159	B-4B	D0554	A-2I	L0203	B-2E	D0170	B-3G	D1109	B-4B	R0160	A-3C	R0245	B-2F				
C0109	A-4C	C0184	A-4G	C0263	B-2F	C0418R	A-5E	C0605	A-6J	C0933	A-5I	C1160	A-3B	D0556	A-1H	L0204	B-2G	D0171	A-3G	D1110	B-3B	R0161	A-4C	R0246	B-2F				
C0110	A-4C	C0185	B-4G	C0264	B-2G	C0419L	A-5E	C0606	A-6J	C0934	A-4I	C1161	A-3B	D0601	B-6J	L0206	A-3H	D0173	B-4F	D1201	A-4A	R0163	A-2D	R0247	A-2G				
C0111	B-4D	C0187	B-4G	C0265	B-2G	C0419R	A-5E	C0607	A-5J	C0935	B-6I	C1162	A-3C	D09D1	A-5J	L0207	B-1F	D0175	A-4F	D1202	A-4A	R0164	A-2D	R0248	A-2G				
C0112	A-4D	C0188	B-4F	C0266	A-2G	C0420	B-5F	C0608	B-6J	C0936	B-3I	C1163	B-4B	D0902	A-5I	L0350	B-4H	D0176	A-3F	QF		R0165	B-4E	R0253	B-1E				
C0113	A-4D	C0189	B-4F	C0267	A-2G	C0421	A-5E	C0609	A-5J	C0939	B-4I	C1164	B-4B	D0905	B-5I	L0401	A-4E	02021	A-2G	DF1301	A-5C	R0166	B-2D	R0254	B-4F				
C0114	B-4D	C0190	A-4F	C0270	B-2G	C0422	B-5E	C0610	B-6H	C0940	A-3I	C1165	B-4B	D1101	B-1B	L0552	B-2H	02022	A-2F	R		R0167	A-4C	R0255	B-2G				
C0115	B-1C	C0191	A-3F	C0271	B-2G	C0423	B-4E	C0612	B-6H	C1101	A-1C	C1166	B-4C	D1102	A-2C	L0553	B-2I	D0203	B-2F	R0101	A-5C	R0168	A-3G	R0257	B-1G				
C0116	A-5D	C0201	B-2E	C0272	B-2F	C0424L	B-4F	C0613	B-7I	C1102	B-1C	C1167	B-4C	D1103	A-3A	L0554	B-2J	D0205	B-3F	R0102	A-5C	R0170	A-3G	R0258	B-2G				
C0117	B-4E	C0202	B-2E	C0275	B-3G	C0425	A-4E	C0614	B-7I	C1103	A-1C	C1168	B-4B	D1104	B-4B	L0555	B-2H	D0208	B-3F	R0103	A-4C	R0171	A-3G	R0259	B-1G				
C0118	B-5D	C0203	B-2E	C0350	B-3H	C0426	A-4E	C0615	B-7I	C1104	A-1C	C1169	A-3C	D1303	B-3B	L0556	B-1J	D0209	A-3F	R0104	A-4C	R0172	A-3G	R0260	B-2F				
C0119	B-5D	C0204	B-2E	C0351	B-3H	C0428	B-4E	C0616	B-7I	C1106	B-1C	C1170	A-3C	HLD		L0560	A-2H	D0210	B-2E	R0105	A-4D	R0173	A-3G	R0261	B-2G				
C0120	B-5D	C0205	A-2F	C0352	B-4H	C0430L	A-6D	C0617	B-7I	C1107	B-2B	C1171	B-1C	HL00901	A-6I	L0561	A-2H	D0216	A-3E	R0106	A-4D	R0174	A-3G	R0267	B-2G				
C0121	B-5D	C0206	A-3G	C0353	A-3H	C0430R	B-6D	C0618	B-6J	C1108	B-2B	C1172	B-1C	IC		L0562	A-2H	D0217	B-1D	R0107	A-4D	R0175	A-2G	R0268	B-2G				
C0130	A-1E	C0207	B-2F	C0354	A-4H	C0431L	A-5E	C0619	B-5J	C1109	B-1B	C1173	A-4A	IC0101	A-5D	L0601	B-7H	D0219	B-3G	R0108	A-4D	R0176	B-4F	R0270	B-2G				
C0131	B-3C	C0208	B-2F	C0355	A-3H	C0431R	B-5E	C0636	A-6D	C1110	A-1B	C1174	B-4A	IC0102	A-2D	L0901	B-2J	D0221	B-3G	R0109	A-4D	R0180	A-4G	R0271	B-1G				
C0132	A-3C	C0209	B-2F	C0356	A-4H	C0432	B-6E	C0638	B-6D	C1111	B-1B	C1203	B-3A	IC0201	A-2E	L0902	A-5H	D0224	B-2G	R0110	A-4D	R0181	A-4G	R0272	B-1G				
C0133	A-1D	C0210	B-2F	C0357	B-4H	C0439	B-6E	C0639	B-6D	C1113	B-1B	C1204	B-3A	IC0202	B-4G	L0903	A-1G	D0225	B-1G	R0111	A-4D	R0182	B-4G	R0273	A-3F				
C0134	A-1D	C0213	B-2F	C0358	B-4H	C0441L	A-4F	C0644	B-5D	C1116	A-2A	C1205	B-3A	IC0203	A-3G	L1101	B-2A	D0226	B-2G	R0112	A-4D	R0183	A-4G	R0292	B-3F				
C0136	A-10	C0214	A-2E	C0359	B-4H	C0441R	A-4E	C0645	B-50	C1117	A-2A	C1206	B-3A	IC0204	A-4H	L1102	B-2A	D0228	B-2G	R0113	B-4C	R0184	B-4F	R0293	B-2F				
C0137	A-1D	C0215	A-3E	C0360	B-4H	C0443	A-4E	C0646	B-6C	C1118	A-2A	C1207	A-4A	IC0401	A-5E	L1103	B-2A	D0229	B-2F	R0114	B-4C	R0185	B-4F	R0294	B-2F				
C0140	A-2D	C0216	B-3G	C0362	B-4G	C0445	A-5E	C0647	B-6C	C1119	A-2A	C1208	A-4A	IC0551	A-2I	L1106	A-3B	D0231	B-2F	R0115	B-1C	R0186	B-4F	R0295	B-2F				
C0141	B-2C	C0217	B-2E	C0364	B-3H	C0457L	B-5F	C0648	B-6C	C1120	A-2A	C1209	A-3A	IC0601	B-6I	L1109	B-3C	D0232	B-1G	R0187	B-4F	R0188	B-4F	R0296	B-2F				
C0142	B-1C	C0218	A-2E	C0365	A-3H	C0458	B-6E	C0649	B-6C	C1121	A-2A	C1210	A-3A	IC0631	B-6D	L1110	B-4C	D0350	A-4I	R0117	B-4E	R0189	B-4F	R0298	B-2F				
C0143	A-1D	C0219	A-2E	C0368	A-3H	C0459	B-6E	C0650	B-6C	C1122	A-2A	C1211	A-3A	IC0671	B-1D	L1301	A-5B	D0352	A-4H	R0118	B-2D	R0190	B-4G	R0299	A-2F				
C0144	B-1D	C0224	A-3D	C0391	B-6J	C0460	B-6E	C0655	B-6C	C1124	A-2A	C1212	A-3A	IC09D1	B-4I	L1302	A-3A	D0353	A-3H	R0119	B-4C	R0191	A-4F	R0350	B-3H				
C0145	A-1D	C0226	A-3E	C0392	B-7K	C0461	B-6E	C0671	A-1D	C1125	A-2A	C1301	A-4B	IC0902	A-3I	L1303	A-4B	D0356	A-4H	R0120	B-4D	R0192	A-4F	R0351	A-3H				
C0146	B-2D	C0227	A-2D	C0401L	A-4E	C0462L	B-4F	C0672	B-1E	C1126	A-2A	C1302	A-4B	IC0903	A-4J	PGD101	B-4C	D0390	B-7J	R0121	B-5D	R0193	A-4F	R0355	A-4I				
C0147	B-2D	C0228	A-2D	C0401R	A-4E	C0462R	B-5E	C0691	A-3J	C1127	B-2B	C1303	A-5A	IC0904	A-5H	PGD401	A-5E	D0401L	B-6F	R0122	B-5D	R0194	A-4F	R0356	A-4I				
C0148	B-2D	C0229	A-3D	C0402L	A-4F	C0551	A-1I	C0692	A-3J	C1128	B-2B	C1304	A-5A	IC0907	B-4A	PGC051	A-1G	D0401R	B-5E	R0123	B-5D	R0195	A-3F	R0357	A-4I				
C0149	B-2D	C0230	B-2E	C0402R	A-4D	C0552	A-1I	C0693	A-3J	C1129	B-2B	C1305	B-5B	IC1101	B-1B	PGD501	A-6F	D0402	B-6F	R0124	B-5D	R0196	B-4G	R0358	A-4H				
C0150	B-2D	C0231	B-3D	C0403L	A-4D	C0553	A-1I	C0694	A-3J	C1130	A-1B	C1306	B-4B	IC1102	A-2A	PGD802	B-2K	D0403L	A-6E	R0125	B-5D	R0197	B-4G	R0359	A-4H				
C0151	A-3D	C0232	D-2E	C0403R	A-4E	C0555	A-2J	C0695	A-3J	C1131	A-1B	C1307	B-4B	IC1103	A-2B	PGD503	A-6C	D0403R	B-5E	R0127	B-4D	R0201	B-3F	R0362	A-4I				
C0152	A-2D	C0235	A-2D	C0404L	A-4F	C0556	A-2J	C0696	A-3J	C1132	A-2C	C1308	B-4A	IC1104	B-2B	PGD504	B-1D	D0404	B-6E	R0128	B-4D	R0202	B-3F	R0364	A-3H				
C0153	A-2D	C0237	A-2D	C0404R	A-4E	C0557	B-2J	C0697	B-3I	C1133	B-2B	C1309	B-4A	IC1106	A-4B	PGD901	B-5D	D0407	B-5E	R0129	B-4D	R0203	B-2E	R0365	A-3H				
C0154	A-3D	C0238	B-2E	C0405L	A-4F	C0558	A-1J	C0698	B-3I	C																			



# IDENTIFICATION OF PARTS LOCATION

## MAIN [VCA] 2/2

Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location
R0397	B-3J	R0588	A-1I	R0905	A-3I	R0978	B-1K	R1159	B-4B	RT0212	A-4G		
R0401L	A-5F	R0591	A-2H	R0906	B-2J	R0979	B-1K	R1162	B-4B	RT0214	A-3F		
R0401R	B-5E	R0592	A-2H	R0907	B-3J	R0980	B-1K	R1164	B-3B	RT0215	A-2F		
R0402L	B-6E	R0593	A-2I	R0908	A-3J	R0981	B-1J	R1171	B-5C	RT0216	A-3G		
R0402R	A-5E	R0594	A-2H	R0909	A-3J	R0982	B-1J	R1172	A-2C	RT0217	A-2F		
R0403L	B-6F	R0601	A-6J	R0910	A-3J	R0983	B-1J	R1201	A-4A	SW			
R0403R	A-5D	R0602	A-6J	R0911	A-3J	R0984	B-1J	R1202	B-3A	SW0901	B-1K		
R0404L	B-5F	R0603	A-6J	R0912	B-4J	R0985	B-1J	R1203	B-3A	T			
R0404R	B-5D	R0606	A-5J	R0913	A-4J	R0986	A-1K	R1204	B-3A	TO551	B-1H		
R0405	B-4E	R0609	B-6J	R0914	A-4J	R0987	A-1K	R1205	A-4A	TL			
R0409	A-5E	R0610	A-5J	R0915	B-4J	R0988	A-1K	R1206	B-3A	TL1139	A-2C		
R0410	A-4F	R0611	A-5J	R0916	B-4J	R0989	A-1K	R1207	A-4A	TL1301	B-5B		
R0413L	B-5F	R0612	A-5J	R0917	B-5J	R0990	A-5I	R1208	A-4A	TL1302	B-5A		
R0413R	B-5F	R0613	A-5J	R0918	B-5J	R0991	B-4J	R1209	A-4A	TL1303	B-5A		
R0414	B-6F	R0614	A-5I	R0919	A-4J	R0994	A-1J	R1210	A-4A	TL1304	B-5A		
R0415	A-5F	R0616	B-6H	R0920	A-5J	R1102	A-1B	R1211	A-3A	TL1305	B-5A		
R0417L	A-6E	R0619	B-7I	R0921	A-4J	R1103	B-1B	R1212	A-3A	TL1306	B-5A		
R0417R	B-5D	R0620	B-7I	R0922	A-4J	R1104	A-1B	R1213	A-4A	TL1307	B-4A		
R0418L	A-5E	R0621	B-7I	R0923	B-5J	R1105	A-2A	R1214	A-3A	TL1308	B-5A		
R0418R	B-5D	R0622	B-7I	R0924	B-4J	R1106	A-2A	R1215	A-3A	TL1309	B-4A		
R0419L	A-6E	R0624	B-6J	R0925	A-4J	R1107	A-1B	R1216	A-3A	TL1311	B-4A		
R0419R	B-6E	R0631	A-6D	R0926	A-4J	R1108	A-1A	R1217	A-3A	TL1312	B-4A		
R0428	B-6E	R0632	A-6D	R0929	A-4H	R1109	A-1B	R1218	A-3A	TL1313	B-4A		
R0429L	A-5E	R0636	A-6D	R0930	A-3J	R1110	A-1B	R1220	A-3A	TL1314	B-5A		
R0429R	B-5E	R0641	B-5D	R0931	A-4I	R1113	A-2C	R1221	A-4A	TP			
R0435	B-5F	R0642	B-6C	R0932	A-4J	R1114	A-3B	R1222	B-4A	TP0101	A-2D		
R0436L	A-4F	R0661	B-2J	R0933	A-4J	R1116	A-3B	R1224	B-3A	TP0102	A-3D		
R0436R	A-4E	R0662	B-2J	R0935	A-4I	R1117	A-3C	R1301	A-4B	TP0103	A-1D		
R0445	A-4F	R0663	A-5I	R0937	A-4I	R1118	A-3B	R1302	A-4B	TP0201	A-2D		
R0447	A-4E	R0671	B-1E	R0938	A-4I	R1119	A-3B	R1303	A-4C	TP0202	A-2F		
R0460	B-5E	R0672	B-1E	R0939	A-4I	R1120	B-3B	R1304	A-4C	TP0203	A-2D		
R0461L	B-5E	R0681	B-5H	R0940	A-4I	R1121	B-3B	R1306	B-5B	TP0204	A-1F		
R0462L	B-5E	R0682	B-4I	R0942	B-4I	R1122	B-3B	R1308	A-5A	TP0205	A-2E		
R0463L	B-5F	R0688	A-3I	R0943	B-4I	R1123	B-3B	R1309	A-5A	TP0206	A-3E		
R0464	B-6E	R0689	A-3I	R0944	B-4I	R1124	B-3C	R1310	B-5B	X			
R0465	B-6E	R0691	A-3J	R0945	A-5I	R1125	B-3B	R1313	B-4B	X0201	B-2D		
R0466	B-6E	R0692	A-3J	R0946	A-5I	R1126	B-3B	R1315	B-4A	X0901	B-3I		
R0467	B-6E	R0693	A-3J	R0949	A-5I	R1130	A-2C	R1316	B-4A	X0902	A-5J		
R0468	B-6E	R0694	A-3J	R0953	A-4I	R1131	A-2C	R1317	A-4A	X1101	B-2B		
R0469	B-6E	R0695	A-3J	R0957	A-5K	R1132	A-1C	R1322	A-5A				
R0470	B-6E	R0696	A-3J	R0959	A-5J	R1133	A-1C	R1323	A-5A				
R0551	A-1I	R0697	A-3J	R0962	A-6K	R1134	A-1C	R1330	B-3B				
R0552	A-1I	R0698	A-3J	R0963	A-6K	R1135	A-1C	R1331	A-3A				
R0553	A-1I	R0699	A-3J	R0964	A-5K	R1139	B-4C	R1332	A-3A				
R0558	A-2J	R0715	A-4I	R0965	A-5K	R1140	B-4B	R1335	A-3A				
R0560	A-1J	R0718	A-4H	R0966	A-5K	R1141	B-4C	R1336	A-3A				
R0563	A-2I	R0720	A-5H	R0967	A-5K	R1142	B-4B	RT					
R0564	A-2I	R0723	A-1G	R0968	B-5J	R1143	B-5C	RT0103	A-2D				
R0565	A-2I	R0728	A-3J	R0969	B-5J	R1146	A-3B	RT0202	A-3F				
R0570	A-2I	R0729	B-5I	R0970	A-4J	R1147	A-3B	RT0203	A-3E				
R0571	A-2I	R0730	B-5I	R0971	A-5K	R1148	B-4C	RT0204	A-2F				
R0575	A-1J	R0731	A-4J	R0972	A-5K	R1149	B-4C	RT0205	A-2F				
R0577	A-1J	R0737	B-4J	R0973	B-4J	R1150	B-4C	RT0206	A-3F				
R0578	A-1J	R0901	A-3I	R0974	A-5K	R1151	B-4C	RT0207	A-3G				
R0583	A-1J	R0902	A-3I	R0975	A-6K	R1152	A-3D	RT0209	A-2G				
R0584	A-1J	R0903	A-3I	R0976	B-4I	R1153	A-3C	RT0210	A-3G				
R0585	A-1I	R0904	B-3J	R0977	B-5H	R1158	B-4B	RT0211	A-4F				

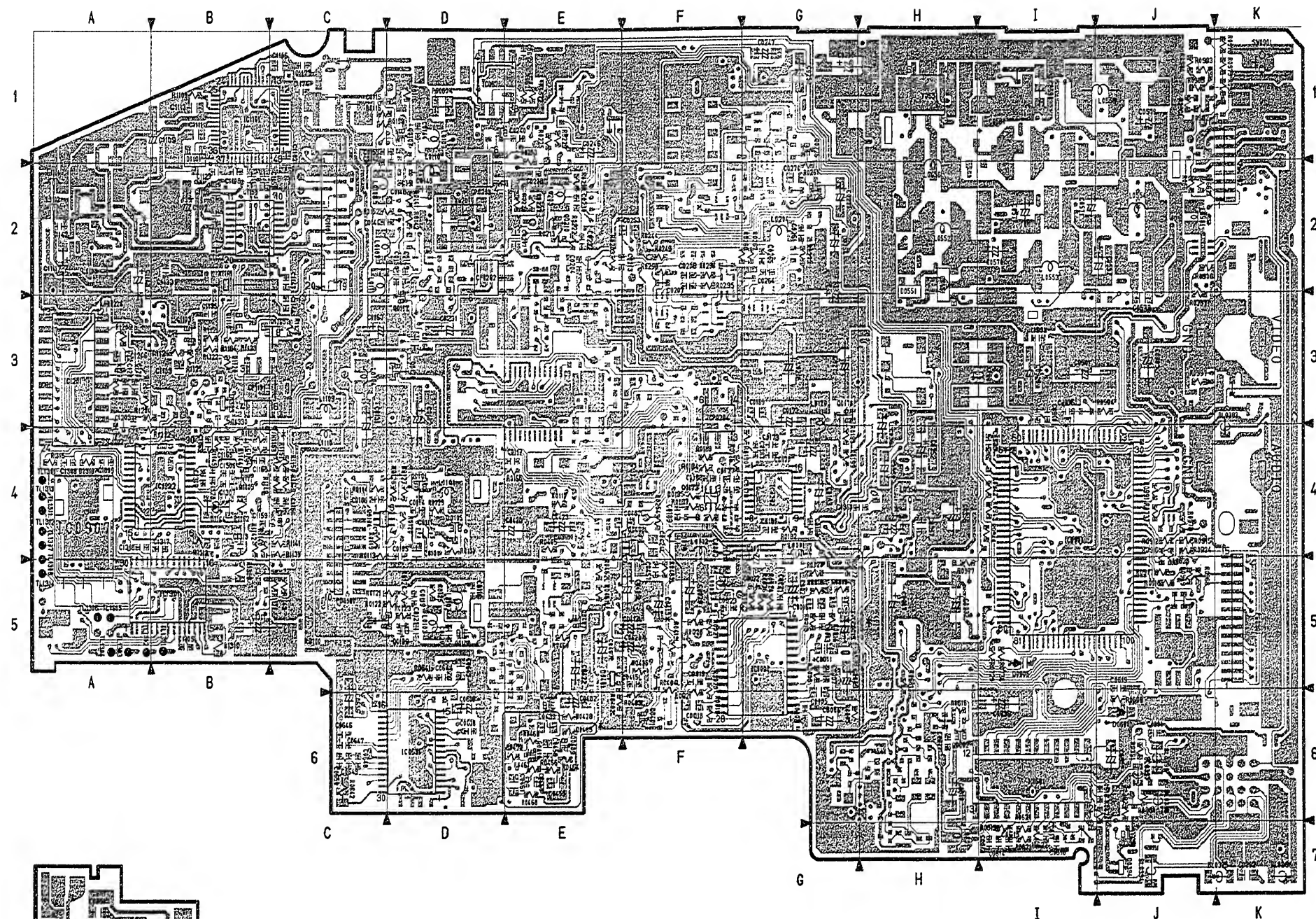
## DIFFERENCE TABLE VCA[MAIN] - SIDE B -

NOTE: This table lists the different components marked with asterisks( \*) in the circuit board diagrams.

SYMBOL No.	TYPE220	TYPE520	TYPE521
C0001	X	X	○
C0002	X	X	○
C0003	X	X	○
C0004	X	X	○
C0005	X	X	○
C0006	X	X	○
C0007	X	X	○
C0011	X	X	○
C0013	X	X	○
C0014	X	X	○
C0015	X	X	○
C0016	X	X	○
C0018	X	X	○
C0019	X	X	○
C0020	X	X	○
C0021	X	X	○
C0022	X	X	○
C0023	X	X	○
C0028	X	X	○
C0029	X	X	○
C0273	X	X	○
C0413	X	○	○
C0420	X	○	○
C0439	X	○	○
C0458	X	○	○
C0459	X	○	○
C0460	X	○	○
C0461	X	○	○
C1164	X	○	○
C1165	X	○	○
IC0001	X	X	○
L0001	X	X	○
L0002	X	X	○
L0003	X	X	○
Q0409	X	○	○
Q0410	X	○	○
R0005	X	X	○
R006	X	X	○
R0013	X	X	○
R0014	X	X	○
R0015	X	X	○
R0018	X	X	○
R0019	X	X	○
R0020	X	X	○
R0021	X	X	○

SYMBOL No.	TYPE220	TYPE520	TYPE521
R0022	X	X	○
R0023	X	X	○
R0024	X	X	JUMPER
R0025	X	X	○
R0026	X	X	○
R0027	X	X	○
R0028	X	X	○
R0464	X	○	○
R0465	X	○	○
R0466	X	○	○
R0467	X	○	○
R0468	X	○	○
R0469	X	○	○
R0470	X	○	○
R1144	JUMPER	X	X
R1145	JUMPER	X	X
R1158	X	○	○
R1159	X	○	○

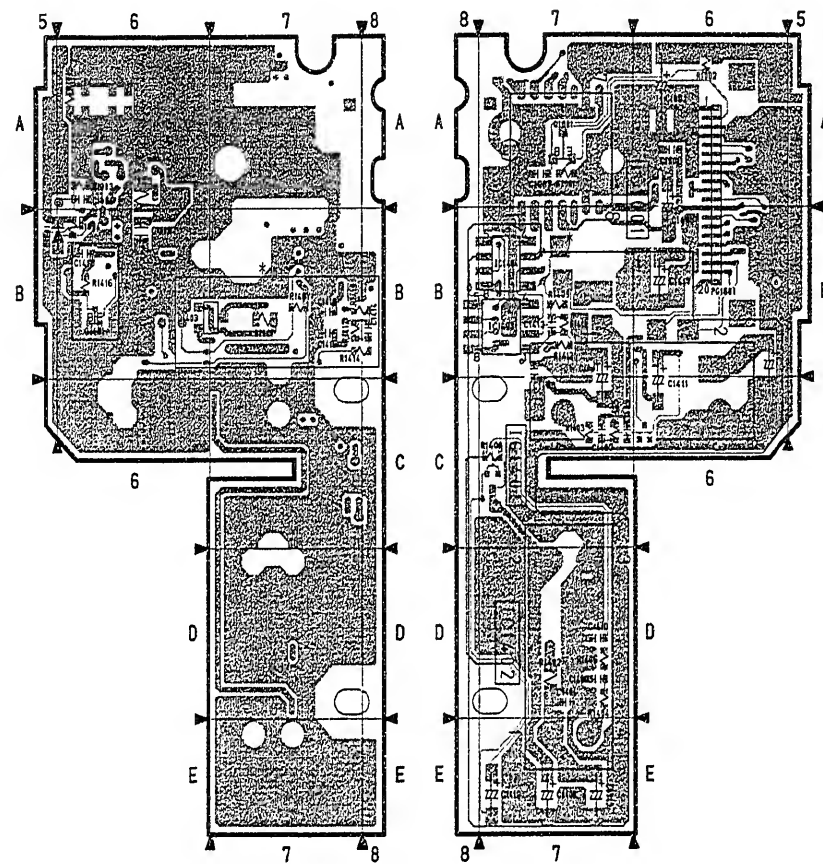
VCA. OPT CIRCUIT BOARDS -SIDE B-  
-TYPE 220. 520. 521-



OPT(OPTICAL)-SIDE B-  
[PATTERN No.JA1248-5]  
-TYPE 521 ONLY-

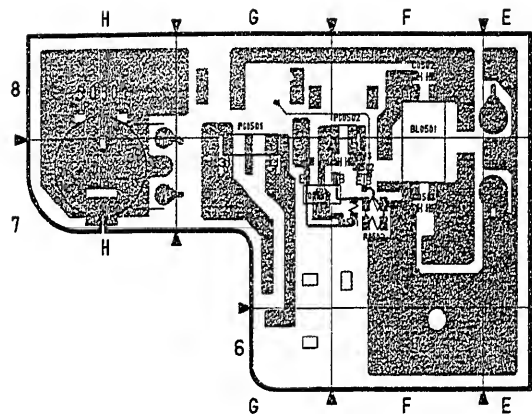
VCA(MAIN)-SIDE B-  
[PATTERN No.JA1248-5]

SPE. DCS. CRE. HTS9551C CIRCUIT BOARDS -TYPE 220. 520. 521-

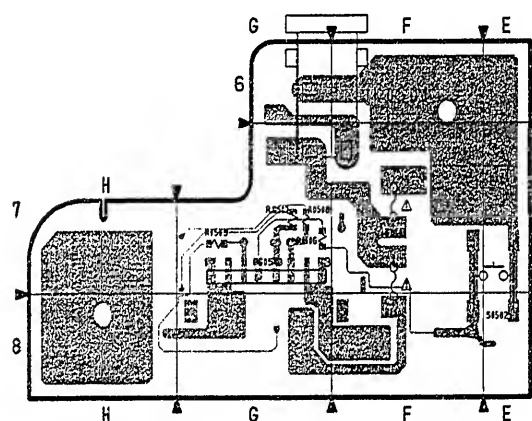


SPE (SENSOR/GYRO)  
-SIDE A-  
[PATTERN No. JA1248-5]

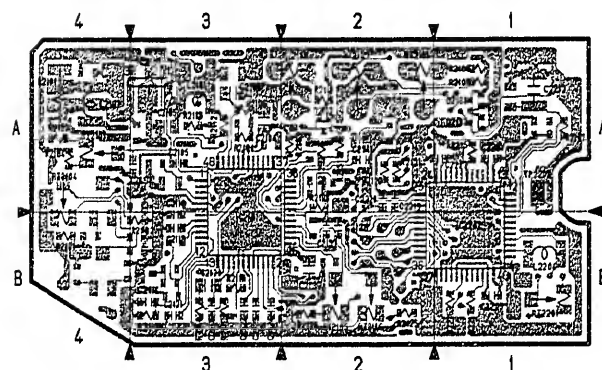
SPE (SENSOR/GYRO)  
-SIDE B-



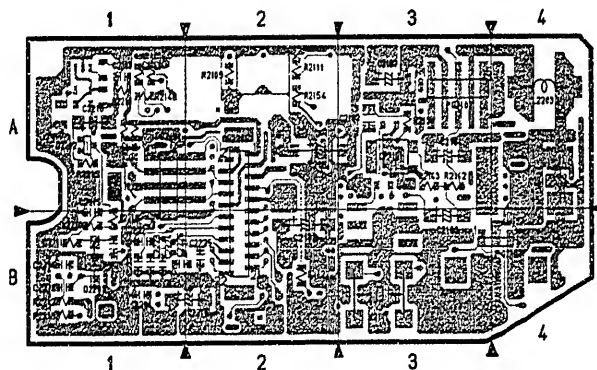
DCS (DC/SWITCH) -SIDE B-



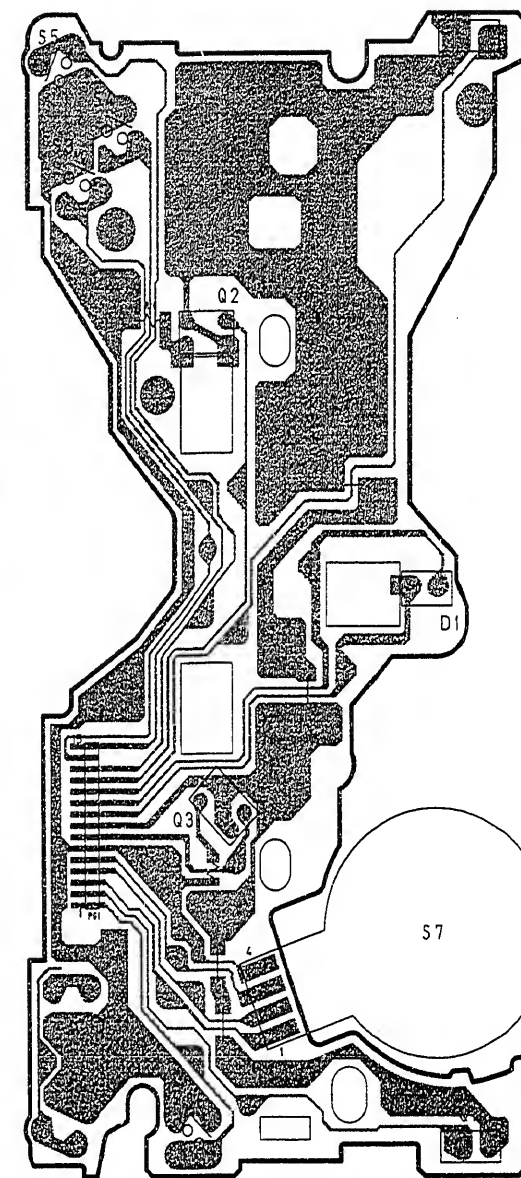
DCS (DC/SWITCH) -SIDE A-  
[PATTERN No. JA1248-5]



CRE (COLOR EVF) -SIDE A-  
[PATTERN No. JA1119-5]



CRE (COLOR EVF) -SIDE B-



TROUBLE SENSOR (HTS9551C)  
[PATTERN No. 155190-21]



# IDENTIFICATION OF PARTS LOCATION

## SPE [SENSOR/GYRO]

Symbol No.	Parts Location	Symbol No.	Parts Location
<b>C</b>		R1412	A-7B
C1002	B-6A	R1413	B-7B
C1003	A-6B	R1414	A-7B
C1004	A-6A	R1416	A-6B
C1005	B-6B		
C1006	B-6A		
C1007	B-7A		
C1401	B-7B		
C1402	B-7E		
C1403	B-7C		
C1404	B-7D		
C1405	B-6C		
C1406	B-7E		
C1407	B-7C		
C1408	B-7D		
C1409	B-7C		
C1410	B-7D		
C1411	B-6C		
C1412	B-7E		
C1413	B-7B		
C1414	A-6B		
C1415	A-7B		
C1416	A-7B		
C1417	B-6B		
C1418	A-6B		
<b>D</b>			
D1001	A-5B		
D1403	A-6B		
<b>IC</b>			
IC1001	B-7A		
IC1401	B-7C		
IC1402	B-7D		
IC1403	B-7B		
IC1404	B-7B		
<b>PG</b>			
PG1001	B-6B		
<b>Q</b>			
D1001	B-7A		
D1401	A-6B		
<b>R</b>			
R1001	B-7A		
R1002	B-6A		
R1003	A-6A		
R1004	A-6B		
R1005	A-6A		
R1009	A-6A		
R1401	A-7B		
R1402	B-7D		
R1403	B-7C		
R1404	B-7D		
R1405	B-7C		
R1406	B-7D		
R1407	A-7B		
R1408	B-7C		
R1409	B-7B		
R1410	A-7B		
R1411	B-7B		

## CRE [COLOR EVF]

Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location
<b>C</b>		<b>I</b>		<b>RT</b>			
C2102	B-3A	I02202	A-1B	R2216	A-1B		
C2104	A-3A	I2181	A-3A	R2217	A-1B		
C2105	A-3A	I2182	A-4A	RT2101	A-2A		
C2106	A-3A	I2203	B-4A	RT2102	A-2A		
C2108	B-3B	I2204	A-1B	RT2103	A-2A		
C2110	A-3B	<b>PG</b>		RT2104	A-4A		
C2113	A-3B	P02102	B-3A	RT2105	A-2B		
C2114	A-3B	P02104	B-1A	RT2106	A-2B		
C2119	A-3B	P02201	B-2A	RT2181	A-4A		
C2120	A-3B	P02203	B-4B	RT2201	A-1B		
C2121	A-3B	<b>R</b>		<b>TP</b>			
C2122	A-3B	R2101	A-4B	TP22D1	B-1A		
C2123	A-3B	R2102	A-3B	TP2202	A-1A		
C2124	A-3B	R2103	A-2A	<b>X</b>			
C2136	A-2B	R2104	A-3A	X2101	B-3B		
C2137	A-2B	R2105	A-3A				
C2138	A-2B	R2106	A-1A				
C2141	A-2A	R2107	B-1A				
C2181	A-3A	R2108	A-1A				
C2182	B-2B	R2109	B-2A				
C2183	B-2A	R2110	A-2A				
C2184	B-3A	R2111	B-2A				
C2185	A-3A	R2112	A-3A				
C2187	B-3A	R2113	A-3A				
C2203	B-1A	R2115	A-3B				
C2204	B-1B	R2118	A-3B				
C2205	A-1B	R2119	A-3B				
C2207	A-1A	R2120	A-2A				
C2211	B-4A	R2121	A-2A				
C2212	B-1B	R2122	B-2B				
C2213	B-1B	R2125	A-2B				
C2214	B-1B	R2126	A-2B				
C2215	B-1A	R2128	A-2A				
C2216	B-1A	R2129	A-2A				
C2217	A-1A	R2139	B-3A				
C2218	B-2B	R2140	A-3B				
C2219	A-2A	R2142	B-3A				
C2220	A-2A	R2143	B-3A				
C2221	B-1B	R2148	B-1A				
C2222	B-1B	R2151	A-2A				
C2223	B-1B	R2153	B-1A				
C2224	B-1B	R2154	B-2A				
C2225	B-2B	R2181	A-4A				
C2226	B-1B	R2182	A-4A				
C2227	A-1A	R2184	A-4A				
<b>CP</b>		R2202	B-1A				
CP2101	B-3A	R2203	B-1A				
<b>D</b>		R2204	B-1A				
D2101	A-1A	R2207	A-1A				
D2102	A-2A	R2208	B-1B				
D2103	A-1A	R2209	B-1A				
D2201	B-1B	R2210	B-1B				
D2202	B-1A	R2211	B-1B				
<b>IC</b>		R2212	B-1B				
IC2101	A-3B	R2213	B-1B				
IC2181	A-3A	R2215	A-1A				

## DCS [DC/SWITCH]

Symbol No.	Parts Location
<b>BL</b>	
BL501	B-8F
<b>C</b>	
C501	B-7F
C502	B-8F
C503	B-7F
<b>F</b>	
F501	A-7F
F502	A-7F
<b>JK</b>	
JK501	A-6F
<b>PG</b>	
PG501	B-7G
PG502	B-6F
PG503	A-7G
<b>Q</b>	
Q501	B-7G
Q502	B-7F
<b>R</b>	
R501	B-7F
R502	B-7F
R503	B-7F
R506	A-7G
R507	A-7G
R508	A-7G
R509	A-7G
<b>S</b>	
S501	B-7H
S502	A-8E

## DIFFERENCE TABLE SPE[SENSOR/GYRO] - SIDE A -

NOTE: This table lists the different components marked with asterisks(\*) in the circuit board diagrams.

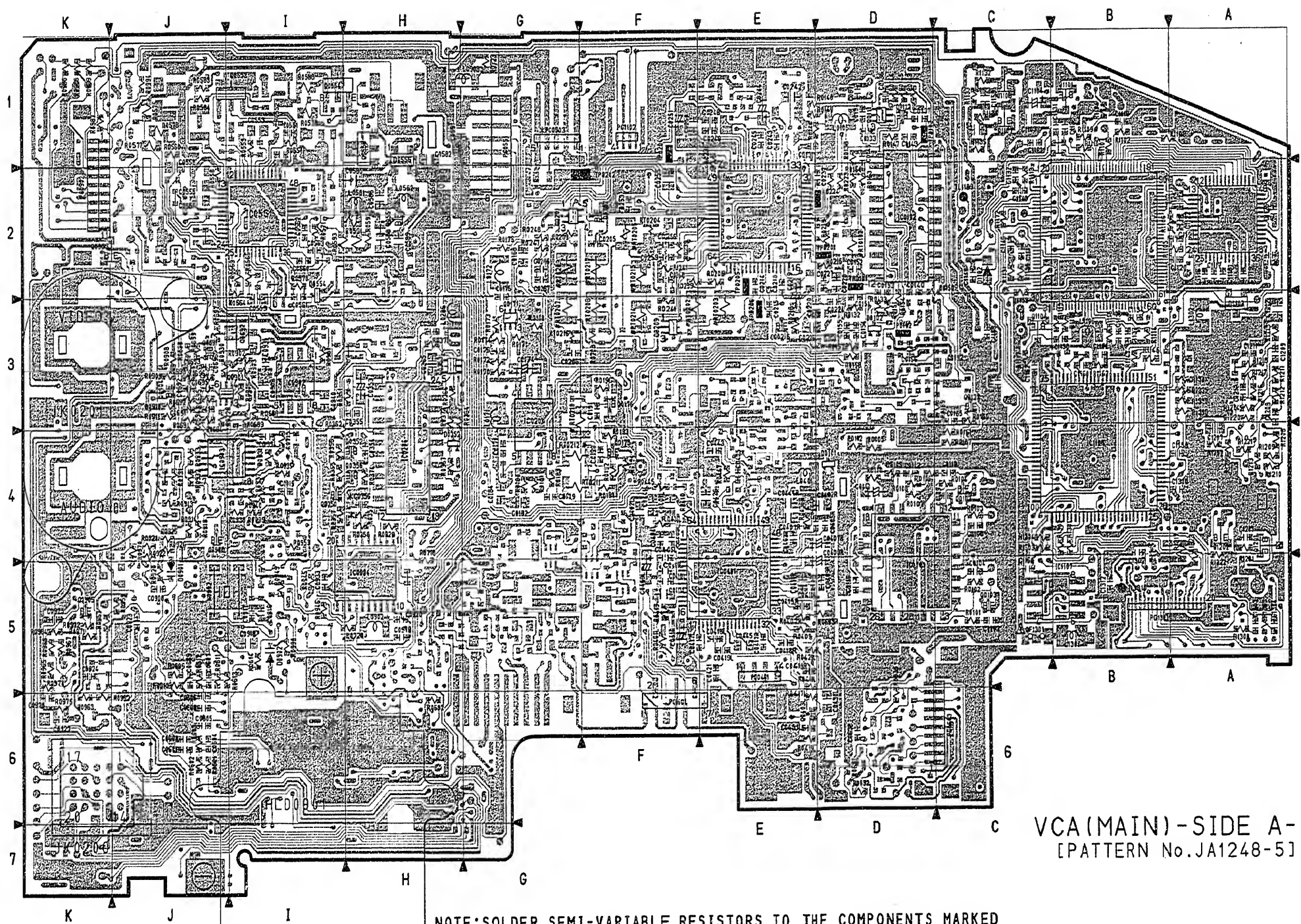
SYMBOL No.	TYPE220	TYPE520	TYPE521
C1414	X	O	O
C1415	X	O	O
C1416	X	O	O
C1418	X	O	O
D1403	X	O	O
Q1401	X	O	O
R1401	X	O	O
R1407	X	O	O
R1410	X	O	O
R1412	X	O	O
R1414	X	O	O
R1416	X	O	O

## SPE[SENSOR/GYRO] - SIDE B -

NOTE: This table lists the different components marked with asterisks(\*) in the circuit board diagrams.

SYMBOL No.	TYPE220	TYPE520	TYPE521
C1401	X	O	O
C1402	X	O	O
C1403	X	O	O
C1404	X	O	O
C1405	X	O	O
C1406	X	O	O
C1407	X	O	O
C1408	X	O	O
C1409	X	O	O
C1410	X	O	O
C1411	X	O	O
C1412	X	O	O
C1413	X	O	O
C1417	X	O	O
IC1401	X	O	O
IC1402	X	O	O
IC1403	X	O	O
IC1404	X	O	O
R1402	X	O	O
R1403	X	O	O
R1404	X	O	O
R1405	X	O	O
R1406	X	O	O
R1408	X	O	O
R1409	X	O	O
R1411	X	O	O
R1413	X	O	O

VCA CIRCUIT BOARD -SIDE A-  
-TYPE 620.720-



MAIN [VCA] 1/2

DIFFERENCE TABLE  
VCA[MAIN] - SIDE A -

NOTE: This table lists the different components marked with asterisks (\*) in the circuit board diagrams.

SYMBOL No.	TYPE620	TYPE720
C0356	○	×
L0903	○	×
PG0903	4P	5P
R0359	×	○
R0723	×	JUMPER

Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location		Symbol No.		Parts Location					
BL				C0131		B-3C		C0217		B-2E		C0403L		A-4F		C0586		A-2H		C0923		A-5J		C1151		B-2B		C00352		A-4H		L0108		B-2C		O0108		B-5D		R0005		B-6G		R0122		B-5O		R0203		B-2E	
BL0393				C0132		A-3C		C0218		A-2E		C0404L		A-4F		C0588		A-2H		C0924		A-5K		C1152		B-2B		C00394		B-7J		L0109		B-10		O0109		B-5O		R0006		B-5G		R0123		B-5O		R0205		A-2E	
BL0394				C0134		A-10		C0219		A-2E		C0405L		A-4F		C0589		A-2H		C0925		A-5K		C1153		A-1C		C00401		B-5E		L0110		B-2D		O0110		B-5C		R0007		A-5G		R0124		B-5O		R0208		A-3F	
BL0395				C0136		A-10		C0224		A-3D		C0406L		B-5F		C0590		B-11		C0927		A-6K		C1154		A-1C		C00551		B-2H		L0111		B-2C		O0112		A-10		R0008		A-5G		R0125		B-5O		R0213		B-2E	
BL0396				C0137		A-10		C0226		A-3E		C0407L		B-5E		C0591		A-1H		C0928		A-6K		C1156		A-5C		C00554		A-2I		L01170		B-3G		O0117		B-3D		R0009		A-5G		R0127		B-4O		R0215		A-2D	
BL0397				C0140		A-2D		C0227		A-2D		C0408L		A-5F		C0601		A-6J		C0930		B-1G		C1158		A-4A		C00556		A-1H		L0171		A-3G		O0120		B-3D		R0010		A-5G		R0128		B-4O		R0216		A-3E	
BL0398				C0141		B-2C		C0228		A-20		C0409L		A-5F		C0602		B-6J		C0931		A-3I		C1159		B-4B		C00601		B-6J		L0172		A-2G		O0123		A-3C		R0011		A-5G		R0129		B-4O		R0218		B-2E	
BL0399				C0142		B-1C		C0229		A-30		C0410L		A-5F		C0603		A-6J		C0932		B-5H		C1160		A-3B		C00901		A-5J		L0203		B-2E		O0170		B-3G		R0012		A-5G		R0130		B-4O		R0219		A-2D	
C				C0143		A-1D		C0230		B-2E		C0411L		A-5F		C0604		A-6J		C0933		A-5I		C1161		A-3B		C00902		A-5I		L0204		B-2G		O0171		A-3G		R0013		B-5G		R0132		A-30		R0222		B-2E	
C0001		B-4G		C0144		B-10		C0231		B-30		C0412L		B-5F		C0605		A-6J		C0934		A-4I		C1162		A-3C		C00905		B-5I		L0206		A-3H		O0173		B-4F		R0014		A-5G		R0133		A-30		R0223		A-2D	
C0002		B-4F		C0145		A-10		C0232		B-2E		C0413		B-5F		C0606		A-6J		C0935		B-6I		C1163		B-4B		C0101		B-1B		L0350		B-4H		O0175		A-4F		R0015		B-5G		R0134		A-30		R0224		A-2D	
C0003		B-6G		C0146		B-20		C0235		A-20		C0415L		B-5F		C0607		A-5J		C0936		B-3I		C1164		B-4B		C01102		A-2C		L0401		A-4E		O0176		A-3F		R0016		A-5G		R0138		A-10		R0225		B-1E	
C0004		B-6G		C0148		B-20		C0237		A-20		C0416		A-5F		C0609		A-5J		C0939		A-4I		C1165		B-4B		C01103		A-3A		L0552		B-2H		O0210		B-2E		R0017		A-5G		R0141		B-2D		R0227		B-2E	
C0005		B-6G		C0149		B-20		C0238		B-2E		C0417L		A-5F		C0609		A-5J		C0940		A-3I		C1166		B-4C		C01104		B-4B		L0553		B-2I		O0216		A-3E		R0018		B-5G		R0142		B-2E					
C0006		B-5G		C0150		B-20		C0240		B-1E		C0418L		A-5E		C0610		B-6H		C1101		A-1C		C1167		B-4C		C01303		B-4B		L0554		B-2J		O0217		B-10		R0019		B-6F		R0143		A-10		R0229		B-1E	
C0007		B-5G		C0151		A-3D		C0242		A-1E		C0419L		A-5E		C0612		B-6H		C1102		B-1C		C1168		B-4B		HLD				L0556		B-2H		O0218		A-1E		R0020		B-5F		R0144		A-10		R0234		A-1E	
C0008		A-5G		C0152		A-2D		C0243		A-1E		C0420		B-5F		C0613		B-7I		C1103		A-1C		C1169		A-3C		HLD0901		A-6I		L0558		B-1J		O0225		B-1G		R0021		B-6F		R0146		A-1E		R0236		A-1E	
C0009		A-5G		C0153		A-2D		C0244		A-1E		C0421		A-5E		C0614		B-7I		C1104		A-1C		C1170		A-3C		IC				L0560		A-2H		O0226		B-2G		R0022		B-5G		R0147		A-10		R0239		A-2F	
C0010		A-5G		C0154		A-30		C0245		A-1E		C0422		B-5E		C0615		B-7I		C1106		B-1C		C1173		B-1C		IC0001		B-5G		L0561		A-2H		O0350		A-4I		R0023		B-5G		R0148		A-1E		R0240		A-3F	
C0011		B-5G		C0155		A-30		C0246		B-1E		C0423		B-4E		C0616		B-7I		C1107		B-2B		C1174		B-1C		IC0101		A-5D		L0562		A-2H		O0352		A-4H		R0024		B-5G		R0149		A-1E		R0241		A-2F	
C0012		A-5G		C0156		A-30		C0247		B-1G		C0424L		B-4F		C0617		B-7I		C1108		B-2B		C1201		A-4A		IC0102		A-2D		L0601		B-7H		O0353		A-3H		R0025		B-5G		R0150		A-20		R0244		B-2F	
C0013		B-5G		C0159		B-1C		C0248		A-1E		C0425		A-4E		C0618		B-6J		C1109		B-1B		C1202		B-4A		IC0201		A-2E		L0901		B-2J		O0356		A-4H		R0026		B-5G		R0152		B-2C		R0245		B-2F	
C0014		B-5G		C0163		B-3C		C0249		A-1E		C0426		A-4E		C0619		B-6J		C1110		A-1B		C1203		B-3A		IC0202		B-4G		L0902		A-5H		O0390		A-7J		R0027		B-5F		R0154		A-20		R0250		A-2G	
C0015		B-5G		C0164		B-30		C0250		A-1F		C0428		B-4E		C0636		A-6O		C1111		B-1B		C1204		B-3A		IC0203		B-4G		L1101		B-2A		O0401L		B-6F		R0028		B-5F		R0156		B-1E		R0253		B-1E	
C0016		B-5G		C0165		A-3C		C0251		A-1F		C0430L		A-6O		C0638		B-6O		C1113		B-1B		C1205		B-3A		IC0204		A-4H		L1102		B-2A		O0403L		A-6E		R0029		A-5F		R0157		A-30		R0254		B-4F	
C0017		A-5G		C0168		A-2G		C0252		B-1G		C0431L		A-6E		C0639		B-6O		C1116		A-2A		C1206		B-3A		IC0401		A-5E		L1103		B-2A		O0404		B-6E		R0030		A-4F		R0158		A-30		R0261		B-2G	
C0018		B-6F		C0169		B-3G		C0253		A-2F		C0432		B-6E		C0644		B-5O		C1117		A-2A		C1207		A-4A		IC0551		A-2I		L1106		A-3B		O0407		B-5E		R0031		A-4F		R0159		A-3C		R0267		B-2G	
C0019		B-5F		C0170		B-4G		C0254		B-2G		C0439		B-6E		C0645		B-5O		C1118		A-2A		C1208		A-3A		IC0601		B-6I		L1109		B-3C		O0408L		B-4F		R0032		A-5F		R0160		A-3C		R0268		B-2G	
C0020		B-5G		C0171		A-4G		C0255		A-2F		C0441L		A-4F		C0646		B-6C		C1119		A-2A		C1209		A-3A		IC0631		B-6D		L1110		B-4C		O0409		B-6E		R0033		A-4G		R0161		A-4C		R0273		B-2G	
C0021		B-5G		C0172		B-3G		C0256		A-2F		C0443		A-4E		C0647		B-6C		C1120		A-2A		C1210		A-3A		IC0671		B-10		L1301		A-5B		O0410		B-6E		R0034		A-4F		R0164		A-20		R0295		B-2F	
C0022		B-5G		C0173		B-4G		C0257		B-3G		C0445		A-5E		C0648		B-6C		C1121		A-2A		C1211		A-3A		IC0901		B-4I		L1302		A-3A		O0551		B-2H		R0035		A-4F		R0165		B-4E		R0296		B-2F	
C0023		B-5F		C0174		A-3G		C0258		A-2F		C0457L		B-5F		C0649		B-6C		C1122		A-2A		C1212		A-3A		IC0902		A-3I		PG				O0553		A-1I		R0036		A-4G		R0167		A-4C		R0298		B-2F	
C0024		A-5F		C0175		A-2G		C0259		A-2F		C0458		B-6E		C0650		B-6C		C1124		A-2A		C1301		A-4B		IC0903		A-4B		PG0001		A-5F		O0554		A-1I		R0037		A-5G		R0168		A-3G		R0355		A-4I	
C0025		A-4F		C0176		A-3G		C0260		A-2F		C0459		B-6E		C0655		B-6C		C1125		A-2A		C1302		A-4B		IC0904		A-5H		PG0101		B-4C		O0555		A-1H		R0038		A-4G		R0170		A-3G		R0356		A-4I	
C0026		A-4G		C0177		B-4F		C0261		B-2G		C0460		B-6E		C0671		A-10		C1126		A-2A		C1303		A-5A		IC0907		B-4A		PG0401		A-5E		O0557		A-2H		R0039		A-5F		R0171		A-3G		R0357		A-4I	
C0028		B-4F		C0178		B-4F		C0263		B-2F		C0461		B-6E		C0672		B-1E		C1127		B-2B		C1304		A-5A		IC1101		B-1B		PG0551		A-1G		O0602		B-6H		R0040		A-5F		R0172		A-3G		R0358		A-4H	
C0029		B-5F		C0179		A-4G		C0264		B-2G		C0462L		B-4F		C0691		A-3J		C1128		B-2B		C1305		B-5B		IC1102		A-2A		PG0601		A-6F		O0691		A-3J		R0043		A-5H		R0173		A-3G		R0359		A-4H	
C0101		B-40		C0180		B-4G		C0265		B-2G		C0551																																							



# IDENTIFICATION OF PARTS LOCATION

MAIN [VCA] 2/2

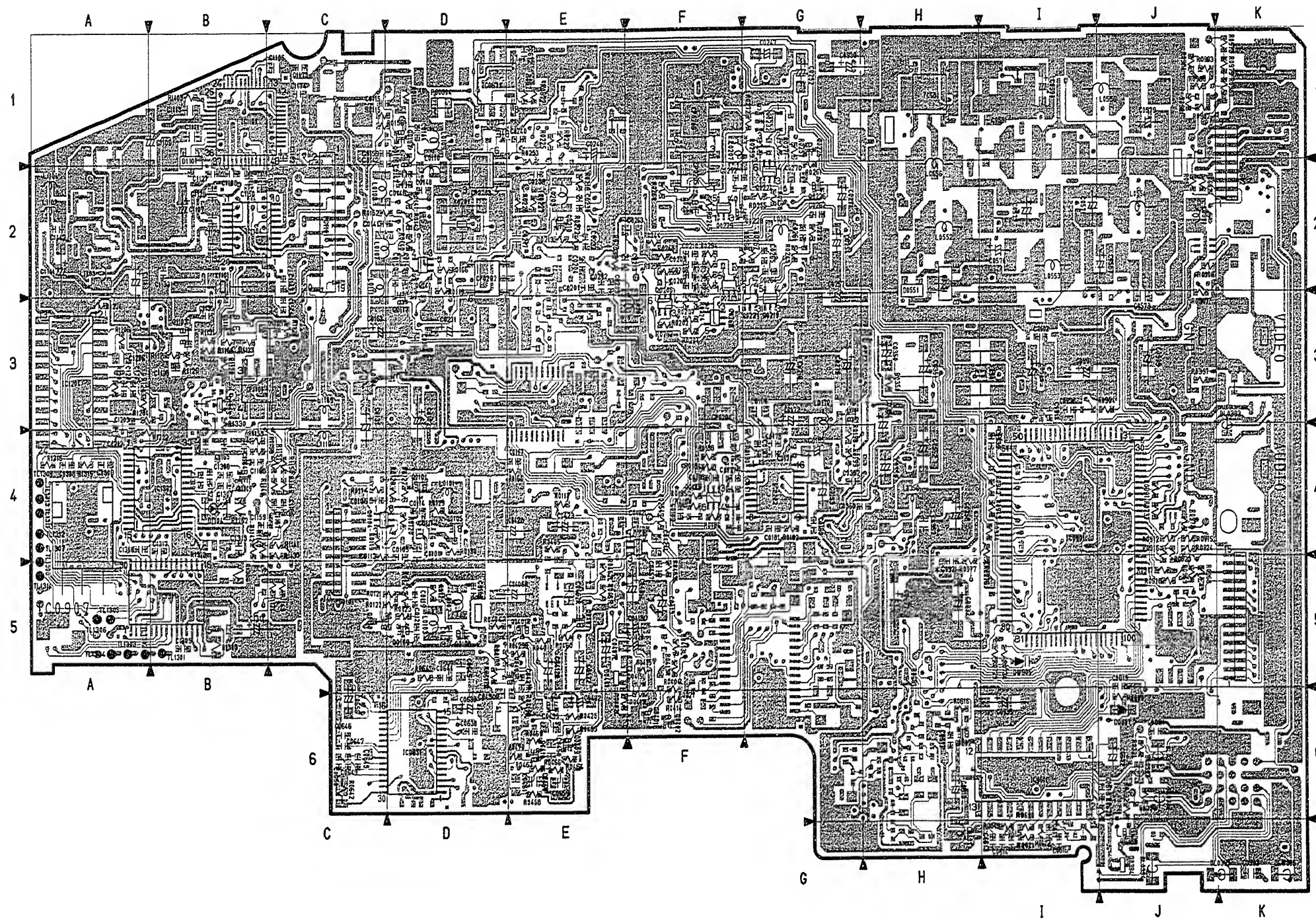
Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location
R0418L	A-5E	R0632	A-6D	R0929	A-4H	R1109	A-1B	R1216	A-3A	TL1308	B-5A
R0419L	A-6E	R0636	A-6D	R0930	A-3J	R1110	A-1B	R1217	A-3A	TL1309	B-4A
R0428	B-6E	R0641	B-5D	R0931	A-4I	R1113	A-2C	R1218	A-3A	TL1311	B-4A
R0429L	A-5E	R0642	B-6C	R0932	A-4J	R1114	A-3B	R1220	A-3A	TL1312	B-4A
R0435	B-5F	R0661	B-2J	R0933	A-4J	R1116	A-3B	R1221	A-4A	TL1313	B-4A
R0436L	A-4F	R0662	B-2J	R0935	A-4I	R1117	A-3C	R1222	B-4A	TL1314	B-5A
R0445	A-4F	R0663	A-5I	R0937	A-4I	R1118	A-3B	R1224	B-3A	TL1318	A-5B
R0447	A-4E	R0671	B-1E	R0938	A-4I	R1119	A-3B	R1301	A-4B	TP	
R0460	B-5E	R0672	B-1E	R0939	A-4I	R1120	B-3B	R1302	A-4B	TP0001	A-5F
R0461L	B-5E	R0681	B-5H	R0940	A-4I	R1121	B-3B	R1303	A-4C	TP0002	A-5F
R0462L	B-5E	R0682	A-5H	R0942	B-4I	R1122	B-3B	R1304	A-4C	TP0003	A-5F
R0463L	B-5F	R0688	A-3I	R0943	B-4I	R1123	B-3B	R1306	B-5B	TP0101	A-2D
R0464	B-6E	R0689	A-3I	R0944	B-4I	R1124	B-3C	R1308	A-5A	TP0102	A-3D
R0465	B-6E	R0691	A-3J	R0945	A-5I	R1125	B-3B	R1309	A-5A	TP0103	A-1D
R0466	B-6E	R0692	A-3J	R0946	A-5I	R1126	B-3B	R1310	B-5B	TP0201	A-2D
R0467	B-6E	R0693	A-3J	R0949	A-5I	R1130	A-2C	R1313	B-4B	TP0202	A-2F
R0468	B-6E	R0694	A-3J	R0951	A-5I	R1131	A-2C	R1315	B-4A	TP0203	A-2D
R0469	B-6E	R0695	A-3J	R0952	A-4I	R1132	A-1C	R1316	B-4A	TP0204	A-1F
R0470	B-5E	R0696	A-3J	R0957	A-5K	R1133	A-1C	R1317	A-4A	TP0205	A-2E
R0551	A-1I	R0697	A-3J	R0959	A-5J	R1134	A-1C	R1322	A-5A	TP0206	A-3E
R0552	A-1I	R0698	A-3J	R0962	A-6K	R1135	A-1C	R1323	A-5A	TP0302	A-3F
R0553	A-1I	R0699	A-3J	R0963	A-6K	R1139	B-4C	R1330	B-3B	X	
R0558	A-2J	R0714	A-5J	R0964	A-5K	R1140	B-4B	R1331	A-3A	X0201	B-2D
R0560	A-1J	R0715	A-4I	R0965	A-5K	R1141	B-4C	R1332	A-3A	X0901	B-3I
R0563	A-2I	R0718	A-4H	R0966	A-5K	R1142	B-4B	R1335	A-3A	X0902	A-5J
R0564	A-2I	R0720	A-5H	R0967	A-5K	R1143	B-5C	R1336	A-3A	X1101	B-2B
R0565	A-2I	R0728	A-3J	R0968	B-5J	R1144	B-4B	PT			
R0570	A-2I	R0729	B-5I	R0969	B-5J	R1145	B-4B	RT0001	A-5G		
R0571	A-2I	R0730	B-5I	R0970	A-4J	R1146	A-3B	RT0002	A-5G		
R0575	A-1J	R0731	A-4J	R0971	A-5K	R1147	A-3B	RT0003	A-5G		
R0577	A-1J	R0737	B-4J	R0972	A-5K	R1148	B-4C	RT0004	A-5G		
R0578	A-1J	R0901	A-3I	R0973	B-4J	R1149	B-4C	RT0005	A-4G		
R0583	A-1J	R0902	A-3I	R0974	A-5K	R1150	B-4C	RT0103	A-2D		
R0584	A-1J	R0903	A-3I	R0975	A-6K	R1151	B-4C	RT0203	A-3E		
R0586	A-1I	R0904	B-3J	R0977	B-5H	R1152	A-3B	RT0204	A-2F		
R0588	A-1I	R0905	A-3I	R0978	B-1K	R1153	A-3C	RT0205	A-2F		
R0591	A-2H	R0906	B-2J	R0979	B-1K	R1158	B-4B	RT0206	A-3F		
R0592	A-2H	R0907	B-3J	R0980	B-1K	R1159	B-4B	RT0207	A-3G		
R0593	A-2I	R0908	A-3J	R0981	B-1J	R1162	B-4B	RT0209	A-2G		
R0594	A-2H	R0909	A-3J	R0982	B-1J	R1164	B-3B	RT0210	A-3G		
R0601	A-6J	R0910	A-3J	R0983	B-1J	R1171	B-5C	RT0211	A-4F		
R0602	A-6J	R0911	A-3J	R0984	B-1J	R1172	A-2C	RT0212	A-4G		
R0603	A-6J	R0912	B-4J	R0985	B-1J	R1201	A-4A	RT0215	A-2F		
R0606	A-5J	R0913	A-4J	R0986	A-1K	R1202	B-3A	RT0216	A-3G		
R0609	B-6J	R0914	A-4J	R0987	A-1K	R1203	B-3A	SW			
R0610	A-5J	R0915	B-4J	R0988	A-1K	R1204	B-3A	SW0901	B-1K		
R0611	A-5J	R0916	B-4J	R0989	A-1K	R1205	A-4A	T			
R0612	A-5J	R0917	B-5J	R0990	A-5I	R1206	B-3A	T0551	B-1H		
R0613	A-5J	R0918	B-5J	R0991	B-4J	R1207	A-4A	TL			
R0614	A-5I	R0919	A-4J	R0994	A-1J	R1208	A-4A	TL1139	A-2C		
R0616	B-6H	R0920	A-5J	R1102	A-1B	R1209	A-4A	TL1301	B-5B		
R0619	B-7I	R0921	A-4J	R1103	B-1B	R1210	A-4A	TL1302	B-5A		
R0620	B-7I	R0922	A-4J	R1104	A-1B	R1211	A-3A	TL1303	B-5A		
R0621	B-7I	R0923	B-5J	R1105	A-2A	R1212	A-3A	TL1304	B-5A		
R0622	B-7I	R0924	B-4J	R1106	A-2A	R1213	A-4A	TL1305	B-5A		
R0624	B-6J	R0925	A-4J	R1107	A-1B	R1214	A-3A	TL1306	B-5A		
R0631	A-6D	R0926	A-4J	R1108	A-1A	R1215	A-3A	TL1307	B-4A		

## DIFFERENCE TABLE VCA[MAIN] - SIDE B -

NOTE: This table lists the different components marked with asterisks (\*) in the circuit board diagrams.

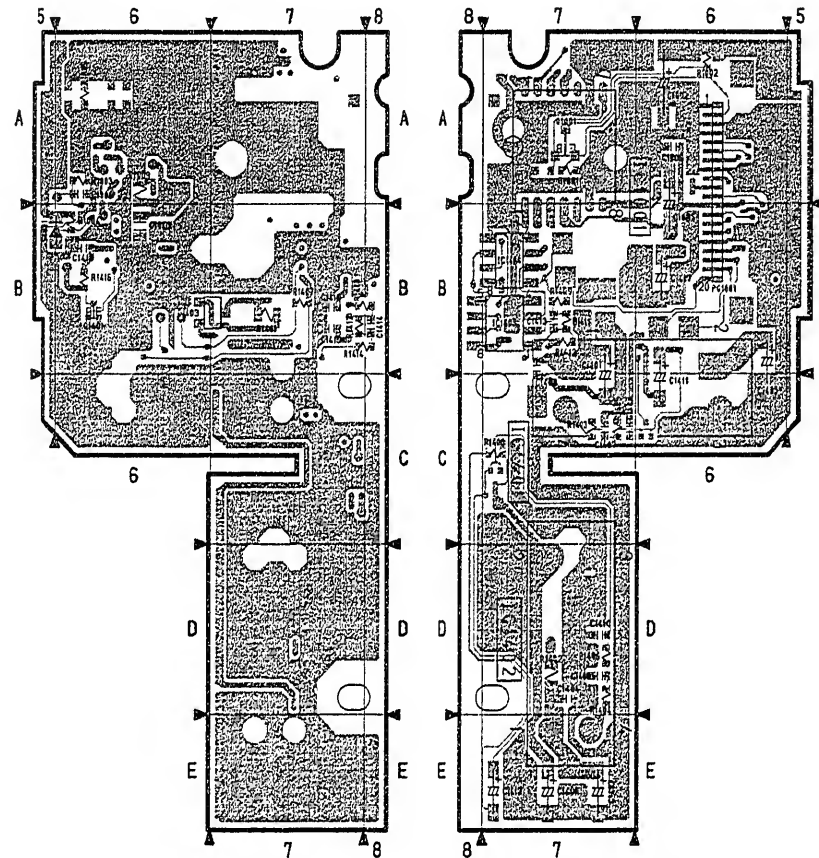
SYMBOL No.	TYPE820	TYPE720
C0921	○	×
R0976	○	×

VCA CIRCUIT BOARD -SIDE B-  
-TYPE 620.720-



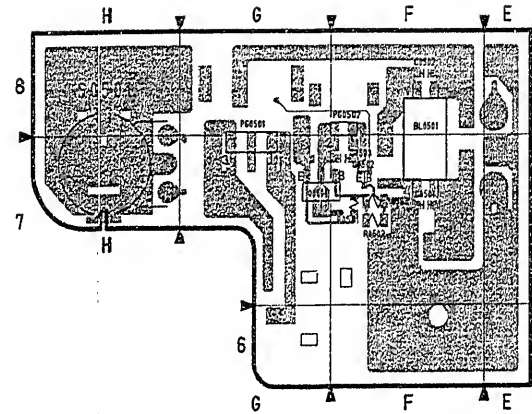
VCA (MAIN) -SIDE B-  
[PATTERN No.JA1248-5]

SPE, DCS, CRE, HTS9551C CIRCUIT BOARDS -TYPE 620, 720-

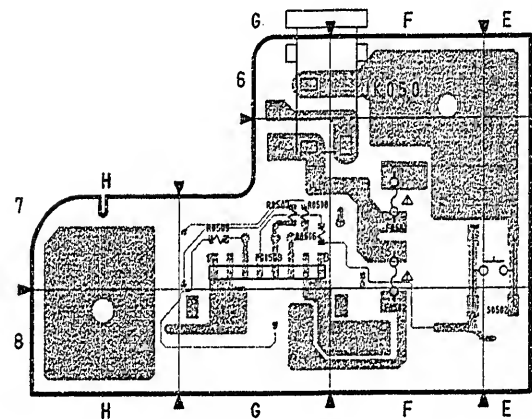


SPE (SENSOR/GYRO)  
-SIDE A-  
[PATTERN No. JA1248-5]

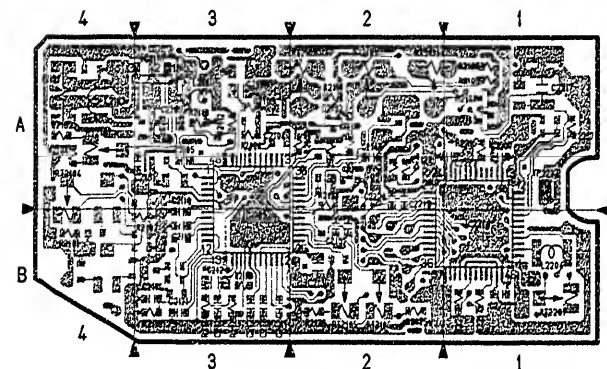
SPE (SENSOR/GYRO)  
-SIDE B-



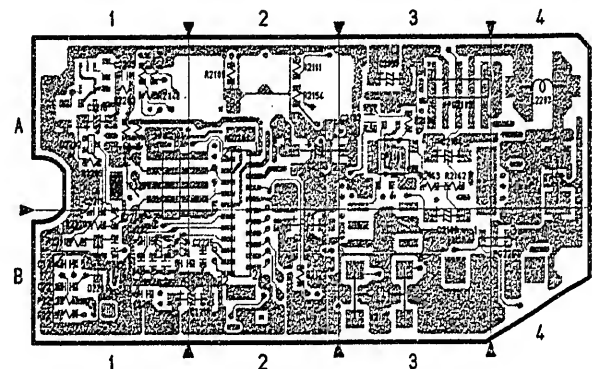
DCS (DC/SWITCH) -SIDE B-



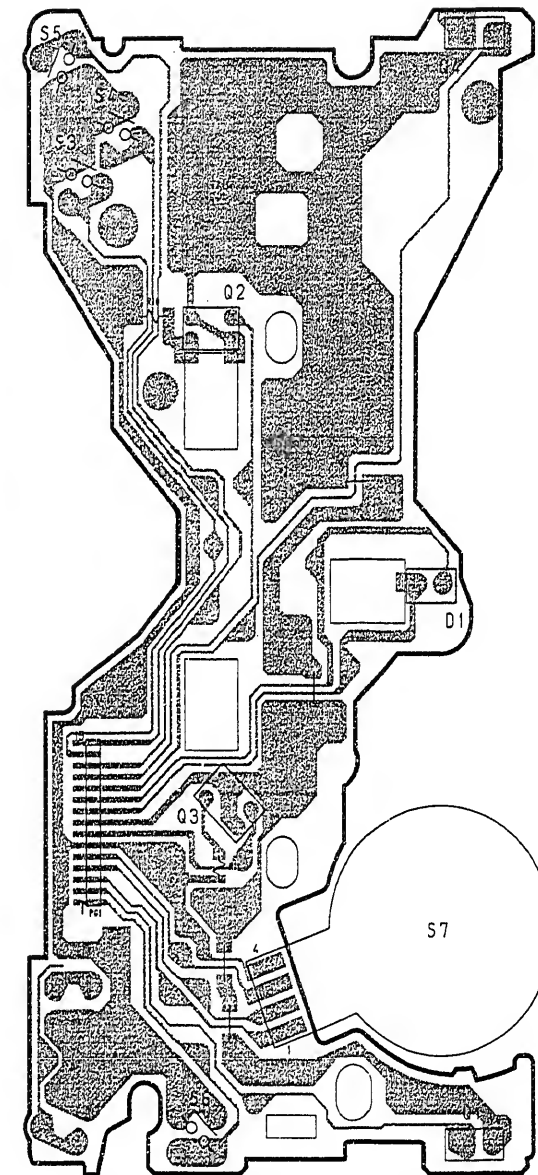
DCS (DC/SWITCH) -SIDE A-  
[PATTERN No. JA1248-5]



CRE (COLOR EVF) -SIDE A-  
[PATTERN No. JA1119-5]



CRE (COLOR EVF) -SIDE B-



TROUBLE SENSOR (HTS9551C)  
[PATTERN No. 155190-2]

# IDENTIFICATION OF PARTS LOCATION

## SPE [SENSOR/GYRO]

Symbol No.	Parts Location	Symbol No.	Parts Location
<b>C</b>		R1413	B-7B
C1002	B-6A	R1414	A-7B
C1003	A-6B	R1416	A-6B
C1004	A-6A		
C1005	B-6B		
C1006	B-6A		
C1401	B-7C		
C1402	B-7E		
C1403	B-7C		
C1404	B-7D		
C1405	B-6C		
C1406	B-7E		
C1407	B-7C		
C1408	B-7D		
C1409	B-7C		
C1410	B-7D		
C1411	B-6C		
C1412	B-7E		
C1413	B-7B		
C1414	A-8B		
C1415	A-7B		
C1416	A-7B		
C1417	B-6B		
C1418	A-6B		
<b>D</b>			
D1001	A-5B		
D1403	A-6B		
<b>IC</b>			
IC1001	B-7A		
IC1401	B-7C		
IC1402	B-7D		
IC1403	B-7B		
IC1404	B-7B		
<b>PG</b>			
PG1001	B-6B		
<b>Q</b>			
Q1001	B-7A		
Q1401	A-6B		
<b>R</b>			
R1001	B-7A		
R1002	B-6A		
R1003	A-6A		
R1004	A-6B		
R1006	A-5A		
R1009	A-6A		
R1401	A-7B		
R1402	B-7D		
R1403	B-7C		
R1404	B-7D		
R1405	B-7C		
R1406	B-7D		
R1407	A-7B		
R1408	B-7C		
R1409	B-7B		
R1410	A-7B		
R1411	B-7B		
R1412	A-7B		

## CRE [COLOUR EVF]

Symbol No.	Parts Location	Symbol No.	Parts Location	Symbol No.	Parts Location
<b>C</b>		IC2202	A-1B	R2216	A-1B
C2102	B-3A	<b>L</b>		R2217	A-1B
C2104	A-3A	L2181	A-3A	<b>RT</b>	
C2105	A-3A	L2182	A-4A	RT2101	A-2A
C2106	A-3A	L2203	B-4A	RT2102	A-2A
C2108	B-3B	L2204	A-1B	RT2103	A-2A
C2110	A-3B	<b>PG</b>		RT2104	A-4A
C2113	A-3B	PG2102	B-3A	RT2105	A-2B
C2114	A-3B	PG2104	B-1A	RT2106	A-2B
C2119	A-3B	PG2201	B-2A	RT2181	A-4A
C2120	A-3B	PG2203	B-4B	RT2201	A-1B
C2121	A-3B	<b>R</b>		<b>TP</b>	
C2122	A-3B	R2101	A-4B	TP2201	B-1A
C2123	A-3B	R2102	A-3B	TP2202	A-1A
C2124	A-3B	R2103	A-2A	<b>X</b>	
C2136	A-2B	R2104	A-3A	X2101	B-3B
C2137	A-2B	R2105	A-3A		
C2138	A-2B	R2106	A-1A		
C2141	A-2A	R2107	B-1A		
C2181	A-3A	R2108	A-1A		
C2182	B-2B	R2109	B-2A		
C2183	B-2A	R2110	A-2A		
C2184	B-3A	R2111	B-2A		
C2185	A-3A	R2112	A-3A		
C2187	B-3A	R2113	A-3A		
C2203	B-1A	R2115	A-3B		
C2204	B-1B	R2118	A-3B		
C2205	A-1B	R2119	A-3B		
C2207	A-1A	R2120	A-2A		
C2211	B-4A	R2121	A-2A		
C2212	B-1B	R2122	B-2B		
C2213	B-1B	R2125	A-2B		
C2214	B-1B	R2126	A-2B		
C2215	B-1A	R2128	A-2A		
C2216	B-1A	R2129	A-2A		
C2217	A-1A	R2139	B-3A		
C2218	B-2B	R2140	A-3B		
C2219	A-2A	R2142	B-3A		
C2220	A-2A	R2143	B-3A		
C2221	B-1B	R2148	B-1A		
C2222	B-1B	R2151	A-2A		
C2223	B-1B	R2153	B-1A		
C2224	B-1B	R2154	B-2A		
C2225	B-2B	R2181	A-4A		
C2226	B-1B	R2182	A-4A		
C2227	A-1A	R2184	A-4A		
<b>CP</b>		R2202	B-1A		
CP2101	B-3A	R2203	B-1A		
<b>D</b>		R2204	B-1A		
D2101	A-1A	R2207	A-1A		
D2102	A-2A	R2208	B-1B		
D2103	A-1A	R2209	B-1A		
D2201	B-1B	R2210	B-1B		
D2202	B-1A	R2211	B-1B		
<b>IC</b>		R2212	B-1B		
IC2101	A-3B	R2213	B-1B		
IC2181	A-3A	R2215	A-1A		

## DCS [DC/SWITCH]

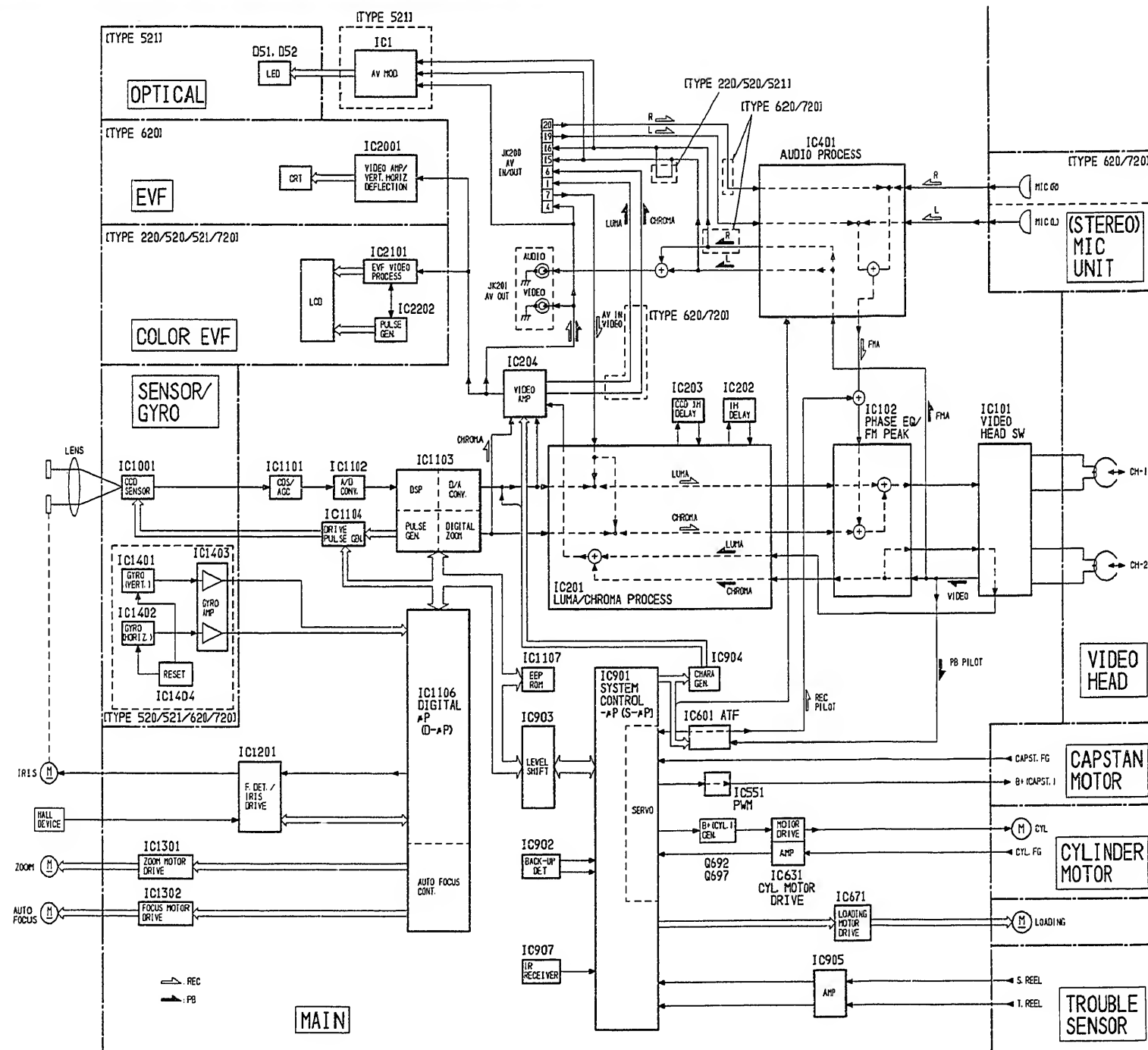
Symbol No.	Parts Location
<b>BL</b>	
BL501	B-8F
<b>C</b>	
C501	B-7F
C502	B-8F
C503	B-7F
<b>F</b>	
F501	A-7F
F502	A-7F
<b>JK</b>	
JK501	A-6F
<b>PG</b>	
PG501	B-7G
PG502	B-8F
PG503	A-7G
<b>Q</b>	
Q501	B-7G
Q502	B-7F
<b>R</b>	
R501	B-7F
R502	B-7F
R503	B-7F
R506	A-7G
R507	A-7G
R508	A-7G
R509	A-7G
<b>S</b>	
SS01	B-7H
SS02	A-8E



# CHAPTER 7

## MICROPROCESSOR PIN FUNCTION TABLE/ BLOCK DIAGRAMS

### 1. BLOCK DIAGRAMS 1. OVERALL

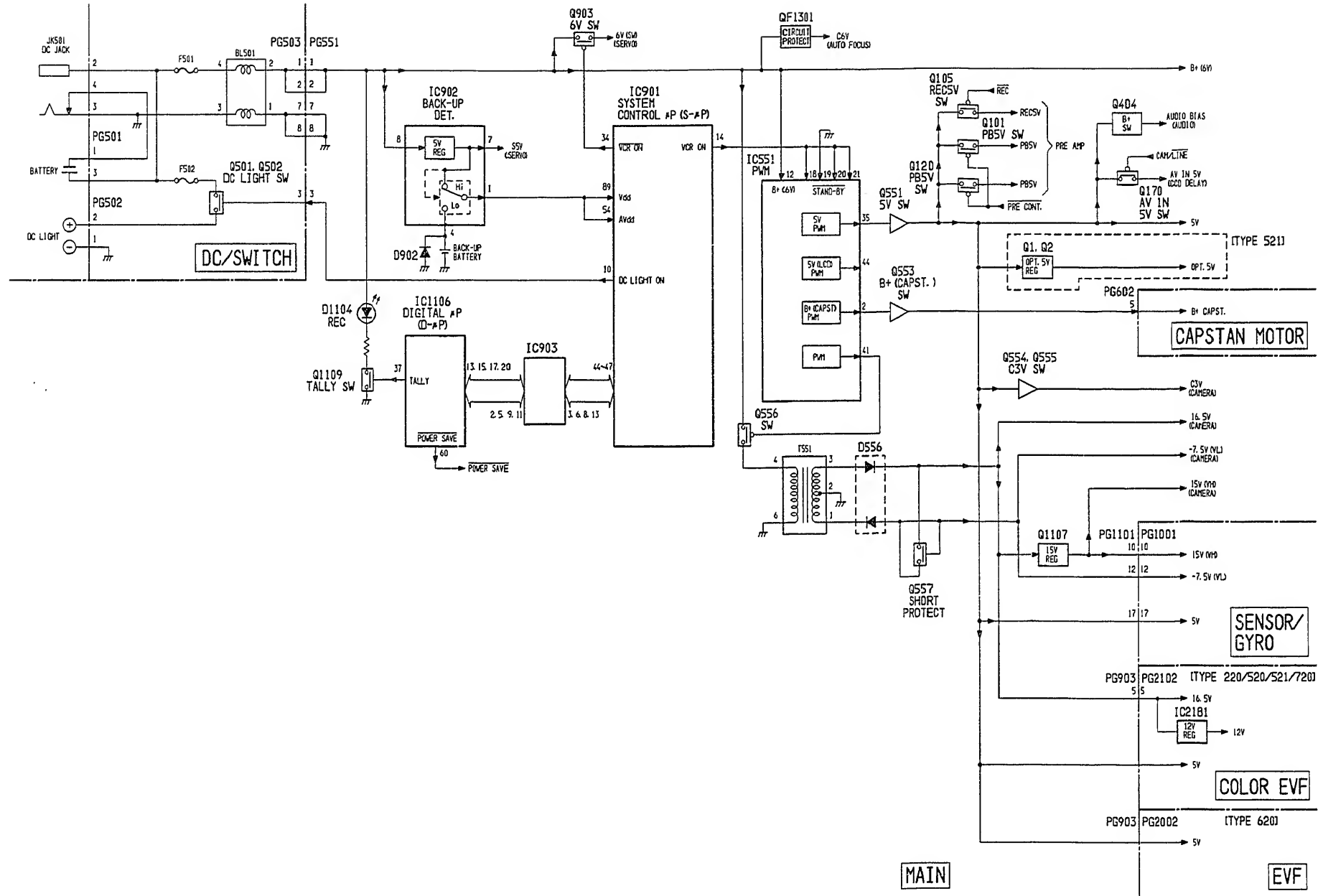


A	E	C	D	E
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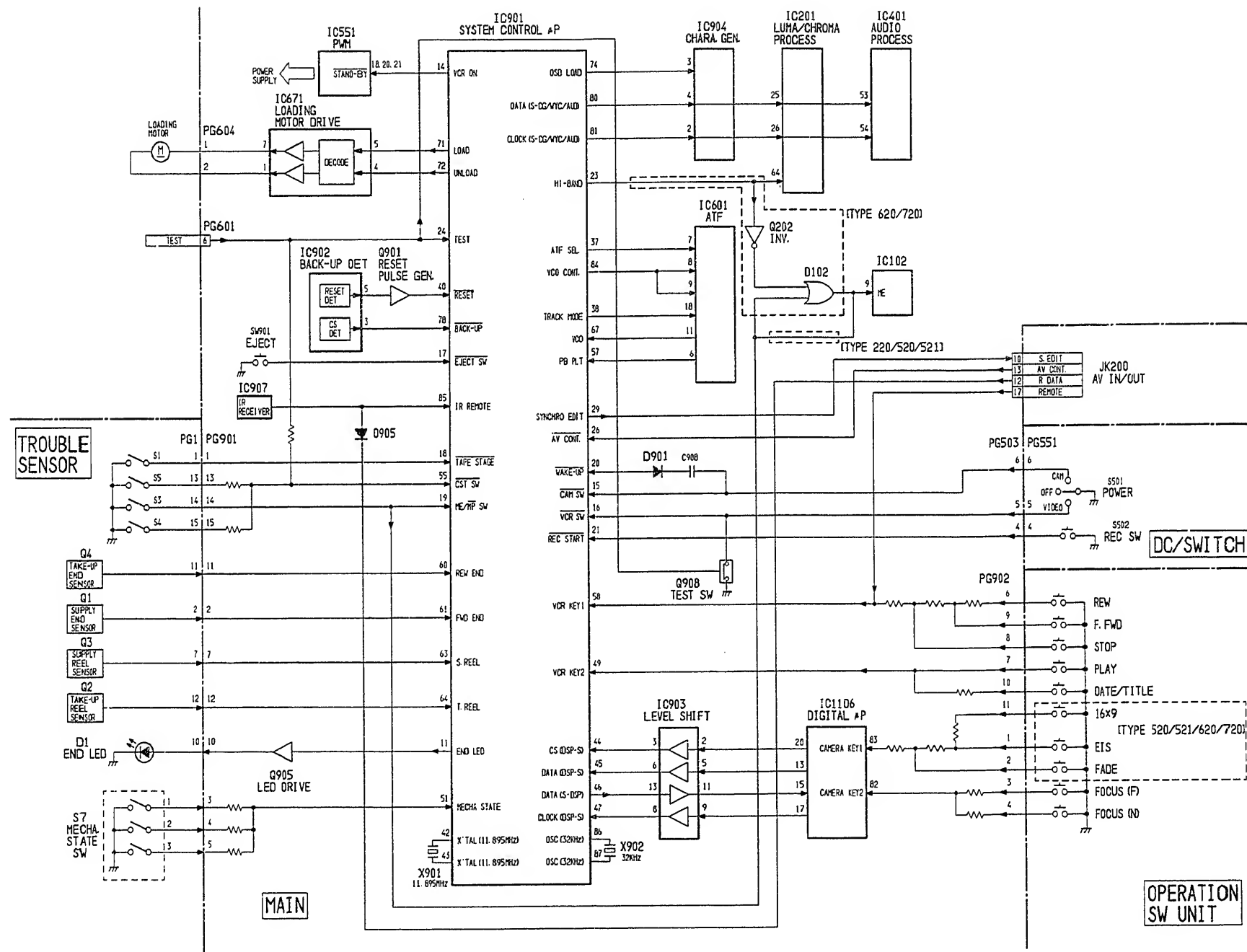




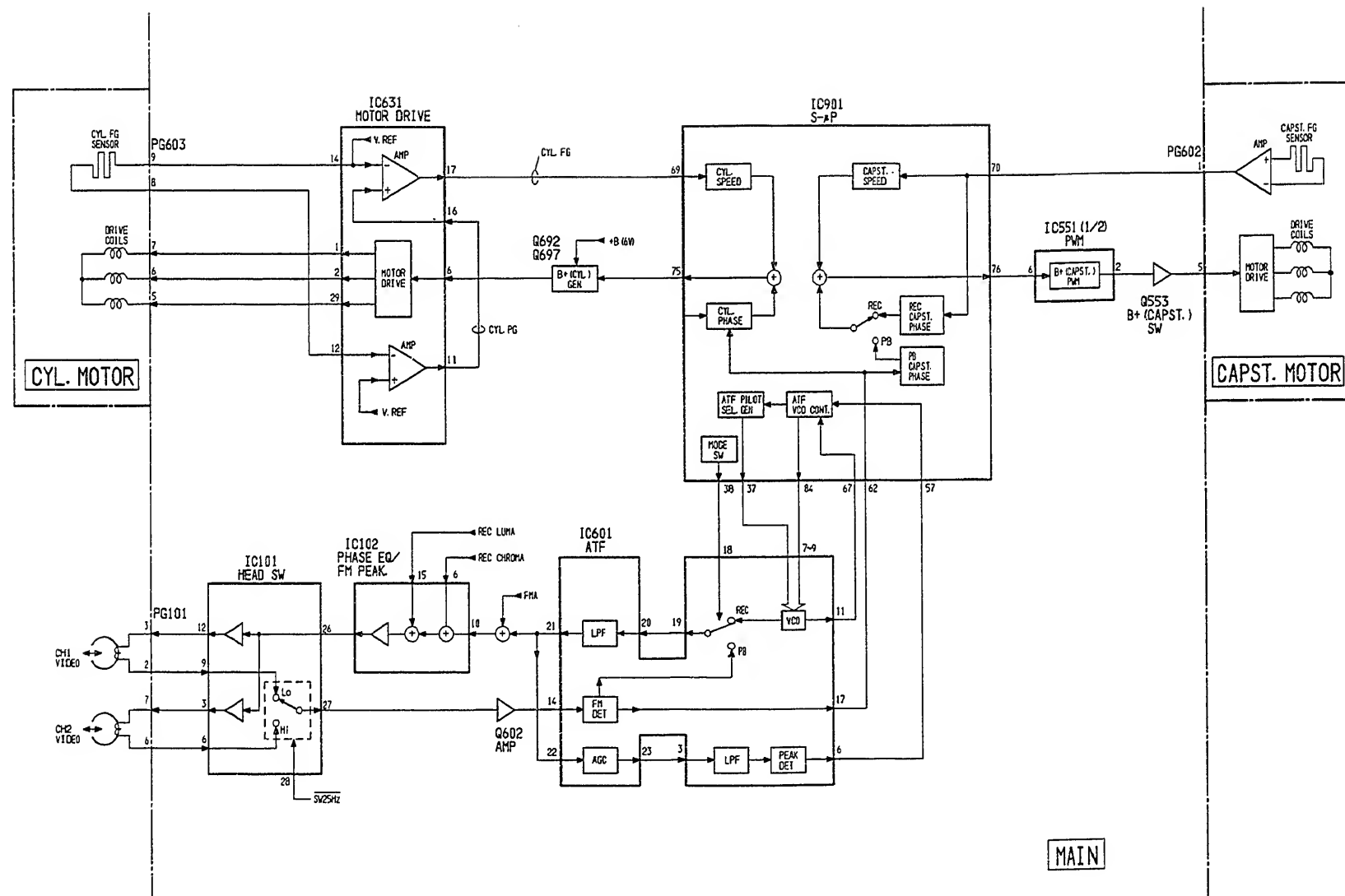
### 3. POWER



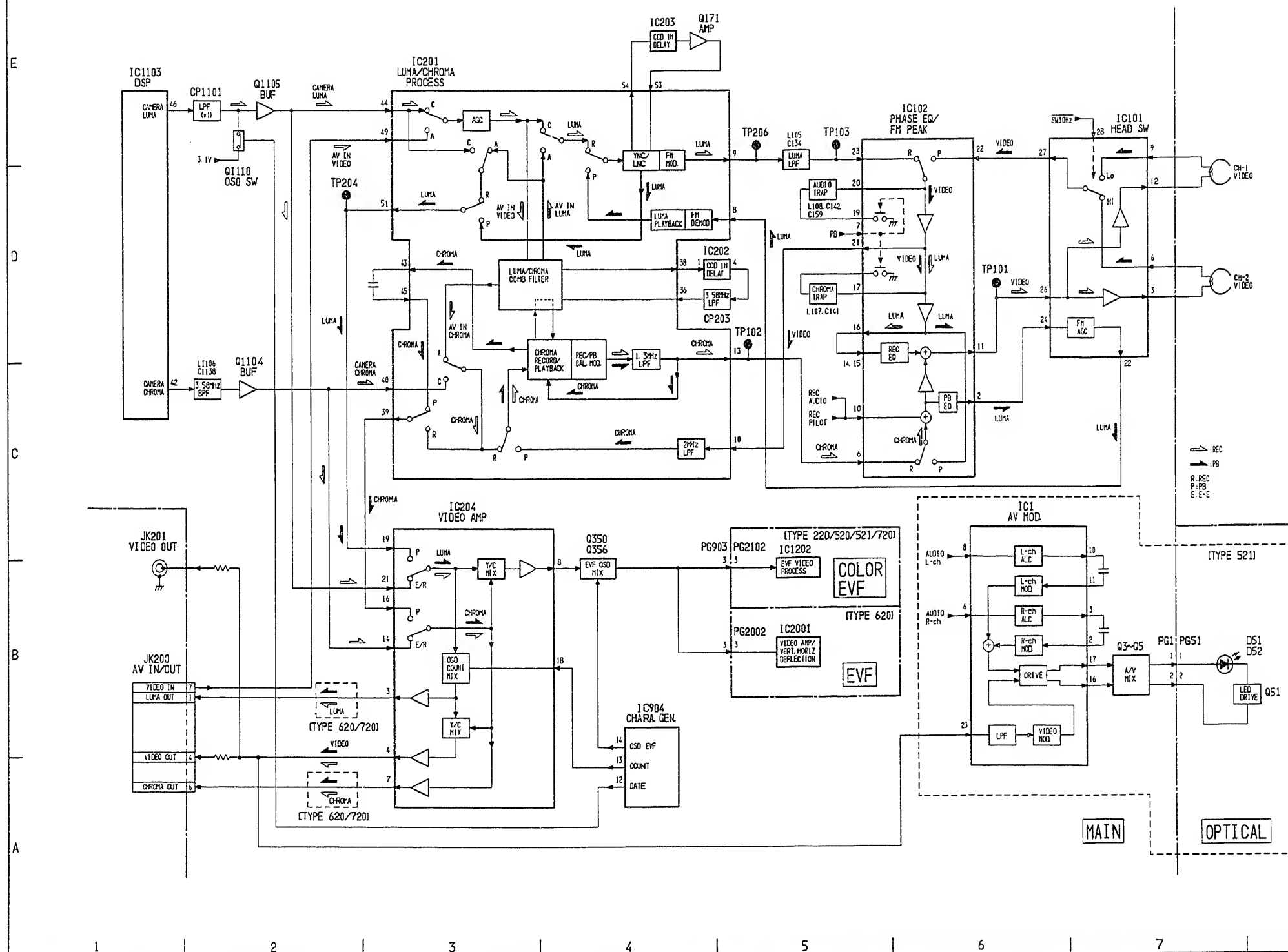
# 4. SYSTEM CONTROL



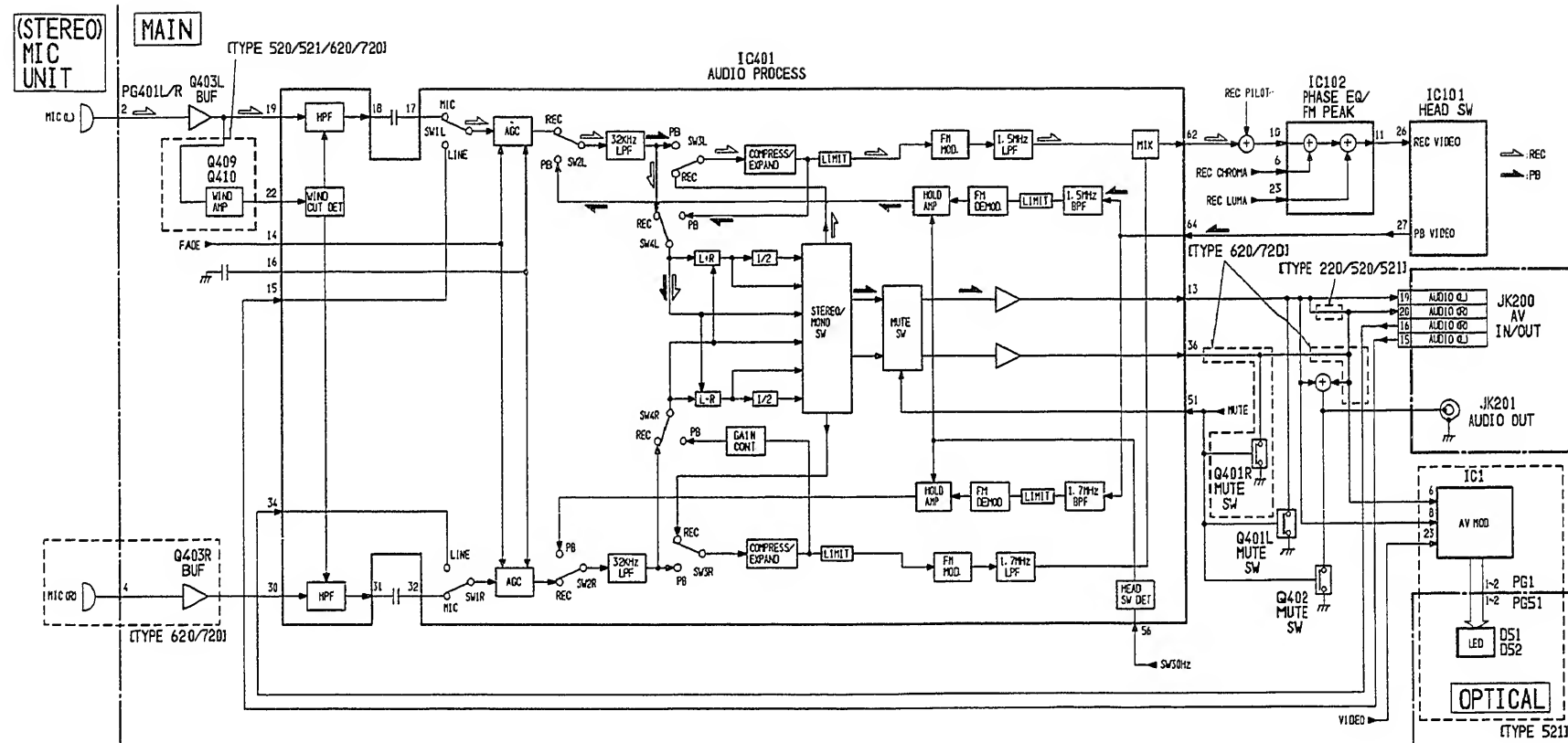
# 5. SERVO



# 6. VIDEO



# 7. AUDIO



## 2. MICROPROCESSOR PIN FUNCTION TABLES

2-1. Digital Microprocessor (IC1106: D- $\mu$ P)

Pin No.	I/O	Active Level	Abbreviation	Function
1	—	—	Vcc	3V power input.
2	0	(Pulse)	CLOCK(D-AF)	Outputs reference clock pulses to IC1302 (FOCUS MOTOR DRIVE).
3	1	(Pulse)	FOCUS SENSOR	Focus motor position detection input.
4	0	(Pulse)	CLOCK(D-ZM)	Outputs reference clock pulses to IC1301 (ZOOM MOTOR DRIVE).
5	1	(Pulse)	ZOOM SENSOR	Zoom motor position detection input.
6	0	(Pulse)	FOCUS LED1	Output pulses to drive the LEDs in the focus reset switches (FOCUS RESET SW).
7	0	(Pulse)	FOCUS LED2	
8	0	(Pulse)	ZOOM LED1	Output pulses to drive the LEDs in the zoom reset switches (ZOOM RESET SW).
9	0	(Pulse)	ZOOM LED2	
10	—	—	RESET[Lo]	Not used. Open.
11	—	—	Vss	Ground.
12	0	(Pulse)	TX DATA	Used for initial settings and adjustment. For data communications with personal computer.
14	1	(Pulse)	RX DATA	
13	0	(Pulse)	DATA(D-DSP/ROM/S)	For data communications with IC1103 (DSP), IC1107 (EEP-ROM) and IC901 (S- $\mu$ P).
15	1	(Pulse)	DATA(DSP/ROM/S-D)	
17	0	(Pulse)	CLOCK(D-DSP/ROM/S)	
16	—	—	—	Not used. Open.
18	0	(Pulse)	LOAD(D-DSP)	Activates data communications with IC1103 (DSP).
19	—	—	—	Not used. Open.
20	0	(Pulse)	LOAD(D-S)	Activates data communications with IC901 (S- $\mu$ P).
21	—	—	—	Not used. Open.
22	—	—	Vss	Ground.
23	0	Lo	LOAD[Lo](D-ROM)	Activates data communications with IC1107 (EEP-ROM).
24	—	—	—	Not used. Open.
25	—	—	—	
26	—	—	—	
27	0	(Pulse)	CLOCK(D-CDS)	Transfer data to IC1101 (CDS/AGC).
28	0	(Pulse)	DATA(D-CDS)	
29	0	Hi	RESET(ZOOM)	Resets IC1301 (ZOOM MOTOR DRIVE).
30	0	(Pulse)	OEB(ZOOM)	Activates data communications with IC1301 (ZOOM MOTOR DRIVE).

Pin No.	I/O	Active Level	Abbreviation	Function
31	0	Hi/Lo	CW/CCW[Lo] (ZOOM)	Issues a command which determines the direction of motor drive to IC1301 (ZOOM MOTOR DRIVE).
32	0	Hi	RESET(FOCUS)	Resets IC1302 (FOCUS MOTOR DRIVE).
33	0	(Pulse)	OEB(FOCUS)	Activates data communications with IC1302 (FOCUS MOTOR DRIVE).
34	0	Hi/Lo	CW/CCW[Lo] (FOCUS)	Issues a command which determines the direction of motor drive to IC1302 (FOCUS MOTOR DRIVE).
35	—	—	Vcc	3V power input.
36	—	—	—	Not used. Open.
37	0	Hi	TALLY	Drives Q1109 (TALLY SW) to turn on the record LED during recording.
38	0	Hi	RESET(V.GYRO)	Drives IC1404 (GYRO RESET) via Q1401 (1Nv.) to reset IC1401 (V. GYRO) and IC1402 (H. GYRO).
39	0	Hi	RESET(H.GYRO)	Not used. Open.
40	0	Hi	HALL GAIN 0	Not used. Open.
41	0	Hi	HALL GAIN 1	Control the amplification (gain of Hall device) of IC1201 (F.DET/IRIS DRIVE).
42	—	—	—	Not used. Open.
43	—	—	—	
44	—	—	Vss	Ground.
45	—	—	—	Not used. Open.
46	—	—	—	
47	—	—	—	
48	—	—	—	
49	—	—	—	
50	—	—	—	
51	—	—	—	
52	—	—	—	
53	—	—	—	
54	1	—	T/W FAST	
55	1	Lo	WIDE SW[Lo]	Zoom switch detection inputs.
56	1	Lo	TELE SW[Lo]	
57	—	—	Vss	Ground.
58	—	—	—	Not used. Open.
59	—	—	—	
60	0	Lo	POWER SAVE[Lo]	Outputs "Lo" in modes other than camera recording to inhibit the operation of each circuit, thus reducing the power consumption.
61	—	—	—	Not used. Open.
62	1	Hi	STAND-BY[Lo]	Not used. Connected to 3V power supply.



Pin No.	I/O	Active Level	Abbreviation	Function
63	I	Hi/Lo	RESET[Lo]	Reset signal input from IC901 (S-μP).
64	I	Hi	NMI[Lo]	Not used. Connected to 3V power supply.
65	—	—	Vss	Ground.
66	I	(Pulse)	AF CLOCK	Clock pulse input from IC1103 (DSP).
67	—	—	—	Not used. Open.
68	—	—	Vcc	3V power input.
69	—	—	—	Not used. Open.
70	I	Hi	PAL[Lo]	NTSC model: Not used. Connected to 3V power supply. PAL model: Used. Connected to ground.
71	I	Hi	SECAM[Lo]	Not used. Connected to 3V power supply.
72	I	Hi/Lo	Hi-BAND[Lo]	Normal 8 model: Not used. Connected to 3V power supply. Hi-8 model: Used. Connected to ground.
73	I	Lo	MD0	Not used. Ground.
74	I	Hi	MD1	Not used. Connected to 3V power supply.
75	I	Hi	MD2	
76	—	—	AVcc	5V power input (for analog circuits in microprocessor).
77	—	—	V.REF	A/D reference voltage input (connected to 5V power supply).
78	I	OV-5V	F.DET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/IRIS DRIVE) and compares this with the reference voltage input via pin 77 to detect the F-value.
79	I	OV-5V	V.MOVE	Receives vertical camera shake correction data from IC1401 (GYRO (VERT.)) via IC1403 (GYRO AMP).
80	I	OV-5V	H.MOVE	Receives horizontal camera shake correction data from IC1402 (GYRO (HORIZ.)) via IC1403 (GYRO AMP).
81	I	OV-5V	TEMP-ADJ.	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
82	I	OV-5V	CAM KEY2	Camera switch detection input (Manual focus).
83	I	OV-5V	CAM KEY1	Camera switch detection input (EIS, fade, cinema mode, instant zoom).
84	O	OV-5V	HALL-ADJ.0	Drives bias generator in IC1201 (F.DET/IRIS DRIVE) via Q1201 (BUF) to control the bias voltage of the Hall devices.
85	O	OV-5V	HALL-ADJ.1	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
86	—	—	AVss	Ground.
87	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC1103 (DSP).
88	I	—	NEAR-SW	Not used. Open.
89	I	—	FAR-SW	Not used. Open.
90	I	(Pulse)	FP	Field discrimination pulse input.
91	I	(Pulse)	EP2	Receives pulses which discriminate the iris detection area.

Pin No.	I/O	Active Level	Abbreviation	Function
92	—	—	Vss	Ground.
93	I	(Pulse)	CHD	Horizontal sync input.
94	—	—	—	Not used. Open.
95	0	(Pulse)	SUB-PWM	
96	—	—	—	Not used. Open.
97	0	(Pulse)	CRTN-CNE	Supplies pulses to IC1103 (DSP) to control the wipe fade operation.
98	—	—	—	Not used. Open.
99	0	(Pulse)	IRIS PWM	Iris motor drive output.
100	—	—	—	Not used. Open.

## 2-2. System Control Microprocessor (IC901: S-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	0	(Pulse)	AUD SW30Hz	Outputs switching pulses to IC401 (AUDIO PROCESS).
2	0	Hi/Lo	x2 PB	Hi: x2 playback mode. Lo: Normal playback mode.
3	0	Lo	CH2 REC[Lo]	Output the signals to select the video heads for recording.
4	0	Lo	CH1 REC[Lo]	Go "Lo" in the corresponding channel period during recording.
5	0	Hi	B.LIGHT	Not used. Open.
6	0	(Pulse)	SW30Hz	Head switching pulse output
7	0	Hi	OPTICAL ON	TYPE720/620/520/220: Not used. Open. TYPE521: Control the AV modulator (IC1: MOD).
8	0	Lo	PB[Lo]	Output to control the mode of the video processor. Goes "Lo" during playback.
9	0	Hi	PB	Output to control the mode of the video processor. Goes "Hi" during playback.
10	0	Hi	DC LIGHT ON	Outputs "Hi" with power on to turn on Q501 and Q502 (DC LIGHT SW), thus supplying power to the DC camera light terminals.
11	0	(Pulse)	END LED	End LED drive output. Outputs pulses of approx. 50Hz when power is turned on.
12	0	Hi	CYL. ST-BY	Cylinder motor start auxiliary output. Outputs "Hi" for 50 ms when the motor is started in the forward rotation direction.
13	0	Lo	RESET[Lo](CAM)	Camera block power supply control output. Outputs "Hi" when power is turned on and "Lo" when power is turned off to initialize the camera block (IC1106: D-μP).
14	0	Hi	VCR ON	Power control output. Outputs "Hi" when power is turned on.
15	I	Lo	CAM SW[Lo]	Power switch detection input. "Lo" is input during recording (camera mode).

Pin No.	I/O	Active Level	Abbreviation	Function
16	I	Lo	VCR SW[Lo]	Power switch detection input. "Lo" is input during playback (VCR mode).
17	I	Lo	EJECT SW[Lo]	Eject switch detection input. When "Lo" is input, the camcorder performs the eject operation even when the power is turned off (standby release input).
18	I	Lo	TAPE STAGE[Lo]	Cassette holder open/close detection input. "Lo" is input when the cassette holder is closed.
19	I	Hi/Lo	ME/MP[Lo] SW	Input to discriminate the type of tape. Hi: ME (metal evaporated) tape, Lo: MP (metal powder) tape.
20	I	Lo	WAKE UP[Lo]	Standby release input. When the camera power is turned on, "Lo" is input to release the standby mode. IC901 detects the inputs of each switch to start operation.
21	I	Lo	REC START[Lo]	Recording start/stop switch detection input.
22	I	Hi	BATT.	Not used. Connected to ground (R737: 100kΩ).
23	I	Hi	Hi BAND	Playback mode detection input. IC901 receives the playback mode detection signal sensed by IC2101 (VIDEO PROCESS) and instructs IC904 (CHARA. GEN.) to generate the display signals and also transfers the operation mode data to IC201. Open for models with which only normal tapes are used.
24	I	Hi	TEST PROG.	Test program start detection input. A test program is executed when "Hi" is input.
25	I	Hi/Lo	PANEL	Not used. Connected ground.
26	I	Lo	AV CONT.[Lo]	Input to detect whether an external AV signal is input or not. "Lo" is input when an AV input cable is connected to the AV input/output connector (JK200: AV IN/OUT).
27	0	Hi	MUTE	Audio muting output. Outputs "Hi" to mute sound.
28	0	Hi/Lo	CAM/LINE[Lo]	Video processor mode control output. Outputs "Hi" during camera recording and "Lo" with an external (line) signal.
29	0	Hi/Lo	SYNCHRO EDIT	Table-top VCR mode control output. The operation mode of the VCR connected to JK200 (AV IN/OUT) is controlled remotely using the pause switch. "Hi" output sets the VCR to the pause mode and "Lo" output releases the pause mode (record mode).
30	0	Hi	TRICK PLAY	Controls the video processor operation mode. Outputs "Hi" during trick play.
31	0	Hi	OSD RESET	Outputs "Lo" with power on and is set to open with power off to initialize IC904 (CHARA. GEN.).
32	—	—	REC PAUSE[Lo]	Not used. Open
33	0	Hi	CAPST. ST-BY	Capstan motor power control output
34	0	Lo	VCR ON[Lo]	Power control output. Outputs "Lo" when power is turned off.

Pin No.	I/O	Active Level	Abbreviation	Function
35	—	—	—	Not used. Open
36	—	—	—	
37	0	Hi/Lo	ATF SEL	Auto track finding (ATF) pilot signal select output.
38	0	Hi/Lo	TRACK. MODE	Output to select the pilot signal from IC601 (ATF). Hi: VCO output, Lo: Playback (PB) FM signal
39	—	—	GND	Grounded.
40	I	Lo	RESET[Lo]	Microprocessor reset input. "Lo" input resets the microprocessor.
41	—	—	Vss	Connected to ground.
42	0	(Pulse)	X' TAL	Drive X901 to generate 12MHz main clock pulses.
43	I	(Pulse)	X' TAL	
44	I	(Pulse)	LOAD (D-S)	For data communications with IC1106 (D-μP).
45	I	(Pulse)	DATA (D-S)	
46	0	(Pulse)	DATA (S-D)	
47	I	(Pulse)	CLOCK (D-S)	
48	I	Hi/Lo	NTSC/PAL[Lo]	Internal mode select input (NTSC: 4V or more, PAL: 0.8V or less)
49	I	0V-5V	VCR KEY2	VCR operation switch detection input (playback, date/title).
50	I	0V-5V	SHORT DET.	Input to detect the short-circuits in the power circuit.
51	I	0V-5V	MECHA. STATE	Mechanism state switch detection input.
52	—	—	AVss	Grounded.
53	I	—	V.REF	Reference voltage input.
54	—	—	AVdd	5V power input.
55	I	0V-5V	CST SW[Lo]	Hi-8 MP tape/erase prevention tab detection input.
56	I	0V-5V	BATT./SHORT.	Input to detect the battery remaining level and short-circuits in the power circuit.
57	I	(Pulse)	PB PLT	Playback pilot signal (PB PILOT) input.
58	I	0V-5V	VCR KEY1	VCR operation switch detection input (rewind, fast forward, stop).
59	I	0V-5V	TRACK ADJ.	For the connection of a tracking control for adjustment. When an ATF-R jig is connected to PG601 (test plug), the variable resistor on the ATF-R jig can be used as a tracking control.
60	I	(Pulse)	REW END	Take-up and supply tape end detection inputs.
61	I	(Pulse)	FWD END	
62	I	(Pulse)	PB ENV.	Playback (PB) FM signal input.
63	I	(Pulse)	S.REEL	Supply/take-up reel sensor inputs. Used to calculate the remaining tape and to detect reel lock.
64	I	(Pulse)	T.REEL	
65	I	Hi/Lo	HB/LB[Lo]	Internal mode select input. (Hi: Hi-8 models, Lo: models used exclusively with normal tapes).

Pin No.	I/O	Active Level	Abbreviation	Function
66	I	(Pulse)	C.SYNC	Composite sync signal input. The separated vertical sync signal is divided by two to generate the 1/2V.SYNC pulse which is used to control the cylinder speed during recording (reference signal).
67	I	(Pulse)	VCO	Receive the signal from the VCO in IC601 (ATF) to fix the frequency of the recording pilot signal (VCO's output).
84	0	(Pulse)	VCO CONT.	
68	I	(Pulse)	TACH PULSE	Tach pulse input. Feedback signal that controls the recording phase of the cylinder.
69	I	(Pulse)	CYL FG	Cylinder FG (CYL. FG) pulse input. Controls the cylinder speed during recording and playback.
70	I	(Pulse)	CAPST. FG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
71	0	Hi	LOAD	Loading motor drive outputs.
72	0	Hi	UNLOAD	
73	—	—	—	Not used. Open.
74	0	(Pulse)	OSD LOAD	Activates communications with IC904 (CHARA. GEN.).
75	0	PWM	CYL.SPEED	Cylinder/capstan servo control outputs.
76	0	PWM	CAPST.SPEED	
77	I	(Pulse)	CAPST.FG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
78	I	Lo	BACK UP[Lo]	Inputs whether a battery is attached or not. "Lo" is input when the battery is detached, to shift the microprocessor to the backup mode in which the data is saved.
79	—	—	TACH SEL	Not used. Open.
80	0	(Pulse)	DATA(S-CG/WYC/AUD)	For data communications with IC904 (CHARA. GEN.), IC201 (LUMA/CHROMA PROCESS) and IC401 (AUD10 PROCESS).
81	0	(Pulse)	CLOCK(S-CG/WYC/AUD)	
82	0	Hi	FADE	Rapid audio fading output. Outputs "Hi" when fading is started to fade the audio signal in rapidly, synchronized with the video signal.
83	I	Lo	Hi-8 REC[Lo]	Internal mode select input (Hi: Hi-8 models, Lo: models used exclusively with normal tapes).
85	I	(Pulse)	IR REMOTE	Remote operation signal input from the infrared receiver.
86	I	(Pulse)	OSC(32kHz)	Generate 32kHz sub-clock pulses.
87	0	(Pulse)	OSC(32kHz)	
88	—	—	Vss	Grounded.
89	—	—	Vdd	5V power input.
90	—	—	—	Not used. Connected to 5V power supply.
91	0	Hi	CYL.REVERSE	Cylinder motor reversing control output.

Pin No.	I/O	Active Level	Abbreviation	Function
92	0	Lo	CAPST.REVERSE [Lo]	Capstan motor reversing control output
93	0	Lo	REC[Lo]	Output to control the video processor during recording.
94	—	—	—	Not used. Open
95	0	Hi	FE CONT.	Flying erase head oscillation control output
96	0	Lo	PRE CONT[Lo]	Preamp activation signal. Outputs "Hi" during playback to activate the preamp.
97	0	(Pulse)	H.DRIVE	Artificial H. sync signal output
98	0	(Pulse)	ADDV+SQ	Artificial V. sync signal + video muting signal output
99	0	(Pulse)	SW30Hz[Lo]	Inverted head switching pulse output
100	—	—	—	Not used. Open

## CHAPTER 8

## APPENDIX

### Self-Diagnostic Functions

#### 1. OVERVIEW

The camera/recorder has the following self-diagnostic functions.

- Occasional defect self-diagnostic function (A mode)
- Mechanical block self-diagnostic function (B mode)

Fig. 1-1 shows the self-diagnostic coverage range. The self-diagnostic functions of the camera/recorder are engaged by the system control  $\mu P$  (IC0901) which detects, memorizes and displays data related to defects in the mechanical block control system.

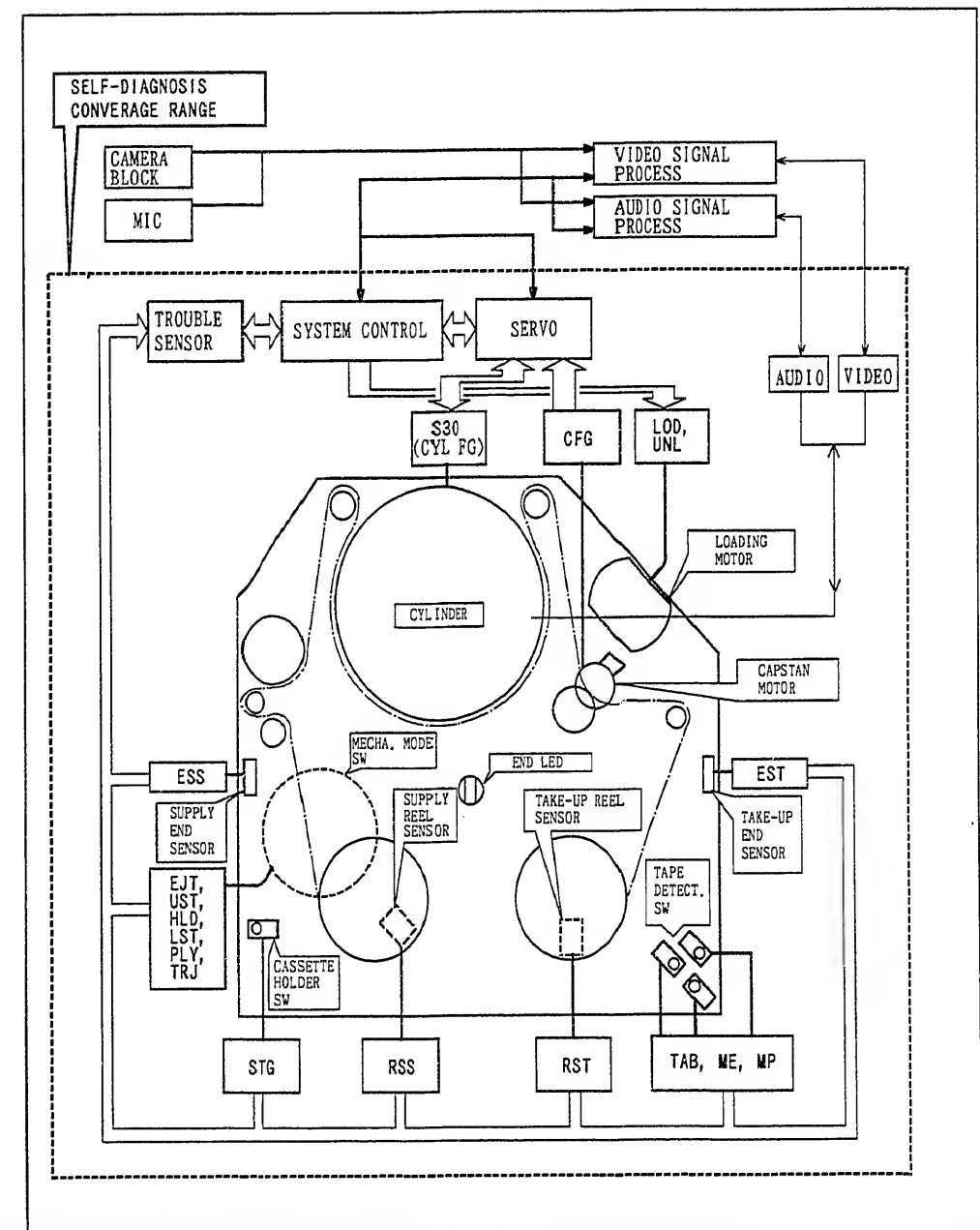


Fig.1-1 Self- Diagnostic Coverage Range

## 2. DETAILS OF DISPLAY/DETECTION AND APPLICATIONS

Table 2-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.

Fig. 2-1 shows the operational processes of the self-diagnostic functions.

Table 2-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

	Occasional defect self-diagnostic function (A mode)	Mechanical block self-diagnostic function (B mode)
Details of display/detection	The system control $\mu$ P memorizes and displays the defect data. (If several defects have occurred, only the last defect detected is memorized.)	Displays the data for the defect that has occurred when the B mode is set.
Application	Used when the defective symptom is not reproduced during servicing.	Used to detect the cause of the defect (in the mechanical block or electrical circuits) and to determine the defective position of the mechanical block.
Detected parts	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG)	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG) Loading motor (LOD, UNL) Mechanism mode switch (EJT, UST, HLD, PLY, LST, TRJ) Tape detection switches, etc. • Erase prevention tab detection switch (TAB) • ME/MP detection switch (ME) • Hi-8 MP detection switch (MP) • Cassette holder switch (STG)
Cautions	When the fast forward or rewind mode is entered, the defect data is erased.	Engage the B mode after completing the A mode. If the B mode is engaged first, the defect data may be erased.

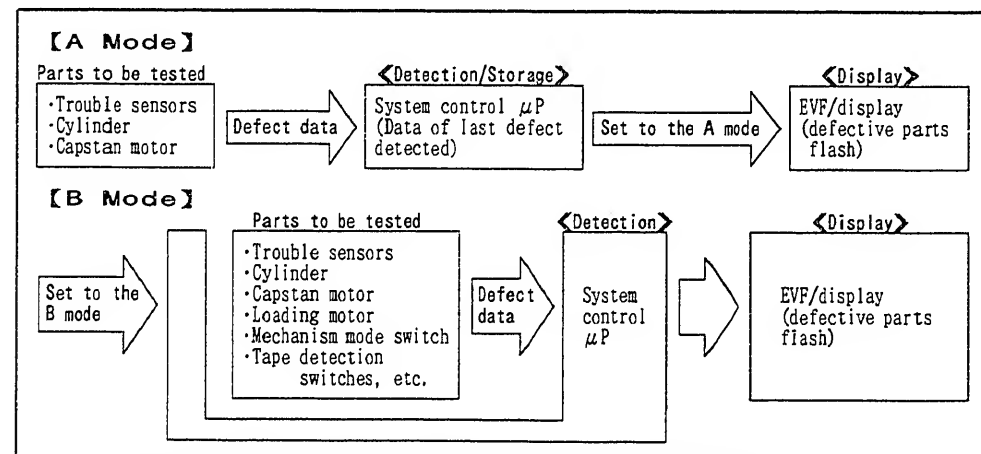


Fig. 2-1 Operation Processes of Self-Diagnostic Functions

## 3. SETTING PROCEDURE AND DETAILS OF DIAGNOSIS

### 3.1 Occasional Defect Self-Diagnostic Function (A Mode)

#### (1) Setting Procedure

- 1) Connect (attach) a power supply (battery).
- 2) Set the power switch to "CAMERA" or "VIDEO".
- 3) Press the DATE button.  
[Within half a second]
- 4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.

E2 <V0.23>95/09/06 13:18 LOD EJT UNL RSS UST RST ESS HLD EST CFG LST S30 TAB PLY STG ME TRJ MP 0000 0123456789ABCDEF H:0000000002001000 L:110111180100BD00 NTSC/NTSCWYC4209 AUD1040	<b>&lt;Results of self-diagnosis&gt;</b> • The shaded items flash if they are defective. • See Table 3-1 for the results of diagnosis.  <b>Cautions:</b> • Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction. • Only the shaded items are tested in the A mode. Other items are ignored.  <b>[To release]</b> • Set the power switch to "OFF". • Press the DATE and REW buttons simultaneously.
---	--

#### (2) Results of diagnosis

Table 3-1 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the A mode.

Table 3-1 Details of A Mode Self-Diagnosis

Part	Display	Results of diagnosis	Parts/circuits deemed to be defective
Trouble sensors	RSS	The pulse from the supply reel sensor is defective.	• Supply reel disk • Trouble sensor (reel sensor) • IC0901
	RST	The pulse from the take-up reel sensor is defective.	• Take-up reel disk • Trouble sensor (reel sensor) • IC0901
	ESS	The pulse from the supply end sensor is defective.	• Trouble sensors (end sensor/end LED) • Q0905 • IC0901 • DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective.	• Trouble sensors (end sensor/end LED) • Q0905 • IC0901 • DC-DC converter circuit (B+ line)
Cylinder	S30	The SW30 (CYL. FG) pulse is defective.	• Cylinder • IC0631 • IC0901 • DC-DC converter circuit
Capstan motor	CFG	The CAPST. FG pulse is defective.	• Capstan motor • IC0631 • IC0901 • DC-DC converter circuit

### 3.2 Mechanical Block Self-Diagnostic Function (B Mode)

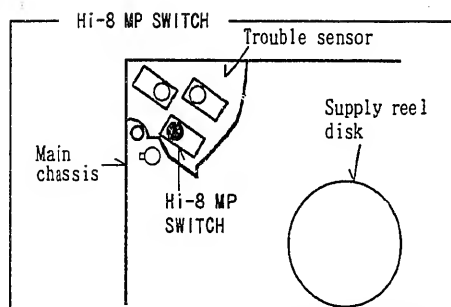
Caution: Complete the A mode before engaging the B mode.

#### (1) Setting procedure

- 1) Connect (attach) a power supply (battery).
- 2) Press the EJECT button to set to the eject state.
- 3) Press the "Hi8 MP" switch on the trouble sensor and the DATE button and hold them, then set the power switch to "CAMERA" or "VIDEO". (Hold this state for a few seconds.)

[Within 3 seconds]

- 4) Close the cassette lid.



```

E2 <V0.23>95/09/06 13:18:
LOD  EJT  UNL
RSS  UST  RST
ESS  HLD  EST
CFG  LST  S30
TAB  PLY  STG
ME   TRJ  MP
□□   0123456789ABCDEF
0000 H:0000000002001000
      L:110111180100B000
      NTSC/NTSCWYC4289 AUD1040
  
```

#### <Results of self-diagnosis>

- The defective items flash.
- The shaded items are the tape detection switches and cassette holder switch which flash when they are not pressed.
- See Table 3-2 for the results of diagnosis.

#### Cautions:

- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- The indications in dotted lines are not covered by the self-diagnostic functions.
- It is normal for the diagnostic procedure to end in the eject state. Do not close the cassette lid thereafter.

[To release]

- Set the power switch to "OFF".

- 5) The procedure ends in the eject state.

Caution: Do not close the cassette lid.

#### (2) Results of diagnosis

Table 3-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

Table 3-2 Results of B Mode Self-Diagnosis (1/2)

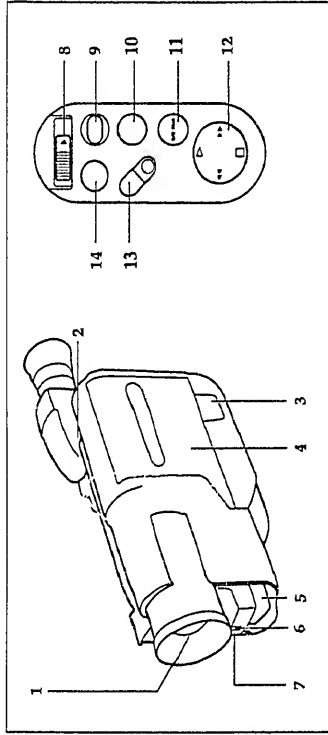
Part	Display	Results of diagnosis (Defect display conditions)	Parts/circuits deemed to be defective
Loading motor	LOD	The loading motor is defective when running forward. (Does not load within 10 seconds.)	• Loading motor • Rotation of drive gears in mechanical block faulty • IC0671 • IC0901 • IC0902 • Power supply (S5V, B+) lines
	UND	The loading motor is defective when running in reverse. (Does not unload within 10 seconds.)	
Trouble sensors	RSS	The pulse from the supply reel sensor is defective. (There is one pulse or less within two seconds.)	• Supply reel disk • Trouble sensor (reel sensor) • Capstan motor • IC0901
	RST	The pulse from the take-up reel sensor is defective. (There is one pulse or less within two seconds.)	• Take-up reel disk • Trouble sensor (reel sensor) • Capstan motor • IC0901

Table 3-2 Results of B Mode Self-Diagnosis (2/2)

Part	Display	Results of diagnosis (Defect display conditions)	Parts/circuits deemed to be defective
Trouble sensors	ESS	The pulse from the supply end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	• Trouble sensors (end sensor/end LED) • Q0905 • IC0901 • DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	• Trouble sensors (end sensor/end LED) • Q0905 • IC0901 • DC-DC converter circuit (B+ line)
Tape detection switches, etc.	TAB	The erase prevention tab detection switch detects the record inhibit state (OFF).	Caution: These switches flash when they are not pressed. It is abnormal if they flash when pressed.  • Trouble sensor • IC0901
	ME	The ME/MP tape detection switch detects the MP state (OFF).	
	MP	The Hi-8 MP tape detection switch detects the normal MP state (OFF).	
	STG	The cassette holder switch detects the state where the cassette holder is not lowered (OFF).	
Capstan motor	CFG	The CAPST. FG pulse is defective. (150 pulses or less within two seconds.)	• Capstan motor • IC0631 • IC0901 • DC-DC converter circuit
Cylinder	S30	The SW30 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.)	• Cylinder • IC0631 • IC0901 • DC-DC converter circuit
Mechanism mode switch	UST	The unloading stop position detection signal is defective.	Caution: The positions shown on the left are detected in the order described within 10 seconds.  • Mechanism mode switch • Trouble sensor • IC0901 • Defective rotation/phase of drive gears in mechanical block • Loading motor • Tape transport components • Guide roller rails • DC-DC converter circuit
	HLD	The half loading position detection signal is defective.	
	LST	The loading stop position detection signal is defective.	
	PLY	The play position detection signal is defective.	
	TRJ	The transient position detection signal is defective.	
	EJT	The eject position detection signal is defective.	

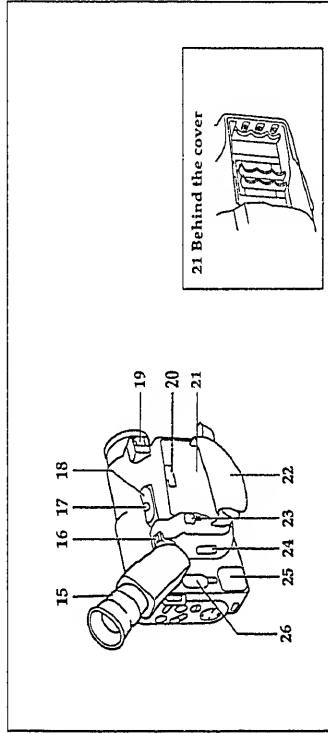


## Identifying Controls

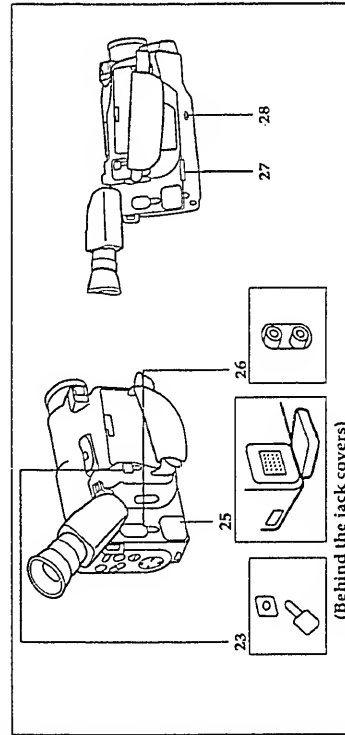


- 1. Lens**  
F1.6 (4-18mm) 12:1 power zoom lens with auto focus and auto iris functions.
- 2. Viewfinder BRIGHT, COLOR and TINT controls**  
Refer to page 56.
- 3. Cassette Holder Close Button**  
CAUTION: Be sure to press this button to close the cassette holder. Otherwise, the tape may become slack and may be damaged.
- 4. Cassette Holder**  
A power source must be connected to the camcorder before a cassette can be inserted or removed.
- 5. Stereo Microphone**  
Sensitive to sounds coming from the direction in which the camera is pointed.
- 6. Record Indicator**  
This indicator lights when the camcorder is recording.
- 7. Infrared Receiver**  
The area where infrared signals from the wireless remote are received. Aim the remote control to this area for best results.
- 8. EJECT Switch**  
A power source must be connected before cassettes can be inserted or removed through the CAM/OFF/VIDEO switch may be set to OFF ("Inserting and Removing Cassettes," p18).
- 9. EIS (Electronic Image Stabilizer) Button**  
EIS corrects slight shaking of an image ("Using the Electronic Image Stabilizer," p. 36).
- 10. 16x9 button**  
With this button the picture format can be switched from 4:3 (picture format of a normal TV set) to 16:9 ("Using 16:9," p36).
- 11. DATE/TITLE (DISP.) Button**  
Use this button to record the date, time and title on your tape. Any time that the date, time and title displays appear in the viewfinder, they are recorded on your tape. This button can be used instead of DISPLAY button on the remote control in the VIDEO mode.  
Note: Be sure to insert the clock battery before setting the date and time or creating a title.
- 12. Ring of Tape Transport**  
▶▶ - FF Button  
Use this button to fast forward tapes or for visual search. During visual search the camcorder fast forwards at approximately 9 times normal playback speed. Also use this button to set date and time.  
□ - STOP Button  
Use this button to stop playback, fast forward, or reverse. Also use this button to set date and time.

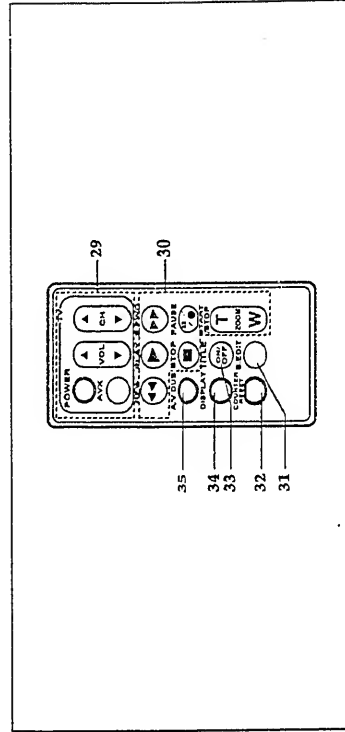
## 2. OPERATION



- 14. REW Button**  
Use this button to fast rewind tapes or for visual search. During visual search the camcorder rewinds at approximately 7 times normal playback speed. Also use this button to set date and time. Furthermore, use this button to review the last few seconds of the tape you are recording.  
▷ - PLAY Button  
Use to playback recorded tapes.
- 13. FOCUS Control Buttons**  
Press these buttons simultaneously to select manual or automatic focus. For manual focusing ("Using Manual Focus," p. 36), press the F or N buttons to bring the subject into focus. When using manual focus, FOCUS appears in the viewfinder.
- 14. FADE Button**  
The FADE button features three modes; white fade, wipe fade, and zoom fade ("Using Fade," p. 37).
- 15. Diopter Control**  
To use the electronic viewfinder, turn this control for your optimum focus adjustment.
- 16. CAM/OFF/VIDEO Power Switch**  
Hold down the red button as you slide the switch to CAM or VIDEO. You do not need to hold down the red button to slide the switch to OFF.
- 17. INST. ZOOM (Instant Zoom) Button**  
Use this button to magnify the image being recorded 1.5 times.
- 18. Power Zoom Switch**  
Use this to zoom automatically ("Using the Power Zoom," p 34).
- 19. Camera Light Shoe**  
Attach the DC camera light here.
- 20. OPEN Lever**  
Use this to open or close the cover of the power supply attachment holder ("Camcorder Batteries," p15).
- 21. Power Supply Attachment Section (Behind the cover)**  
Attach a battery or alkaline batteries here ("Camcorder Batteries," p15,16).
- 22. Hand Strap**  
Refer to page 13.



- 23. DC IN Jack (Behind the Jack cover)**  
When using the AC adapter/charger, connect one end of the DC cord (provided) to this jack and the other end to the DC OUTPUT jack of the AC adapter/charger. When using the car battery cord (optional), connect this jack and the DC OUTPUT jack of the car battery cord.
- 24. Start/Stop Button**  
When the CAM/OFF/VIDEO switch is in CAM press this button to start recording. When pressed a second time the camera pauses. During playback use this button to stop the tape temporarily. Pressing a second time resumes normal playback.
- 25. AV IN/OUT Jack (Behind the Jack cover)**  
Use this jack to connect the camcorder to a VCR or television ("Playing Back Your Recordings," p27,28; "Dubbing from the Camcorder to a VCR," p45; "Recording Television Programs," p54).
- 26. AV OUTPUT Jacks (Behind the Jack cover)**  
You can use an audio/video cable (not supplied) instead of the AV stereo output cable (provided) when viewing the playback picture on the TV, etc.  
• Connect the yellow plug of the audio/video cable to the yellow jack (VIDEO OUT) and the white plug to the white jack (AUDIO OUT).  
• The playback sound becomes monaural.
- 27. Clock Battery Compartment**  
Pull the battery holder and install the clock battery (provided).
- 28. Tripod Mounting Threaded Socket**  
Use this threaded socket to mount the camcorder to a tripod.



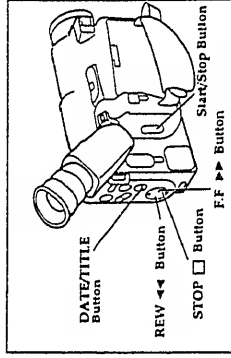
- 29. TV Control Buttons**  
Used for controlling the TV.  
• POWER: Turns the TV on and off.  
• AVX: Used for recording picture and sound from an auxiliary input.  
• VOLUME: Increase (▲) or decrease (▼) the volume.  
• CHANNEL: Top (▲) button switches to the next higher channel, bottom (▼) button switches to the next lower channel. For these to operate, you must have preset your channels. ("Controlling your TV with the Camcorder's Remote Control" p51).
- 30. Recorder's Remote Control**  
The shaded buttons on the remote control have the same functions as the corresponding buttons on the camcorder.
- 31. S.EDIT (Synchro Edit) Button (only on the remote control)**  
Use this button to activate the synchro edit function for dubbing ("Using Synchro Edit," p46).
- 32. COUNTER RESET Button (only on the remote control)**  
Use this button to reset the linear time counter to 0:00:00.
- 33. TITLE ON/OFF Button (only on the remote control)**  
Use this button to create and record titles for your tapes ("Creating and Recording a Title," p 43).
- 34. DISPLAY Button**  
Use this button to select the viewfinder and TV display ("Using the Display Button," p41). This button can be used instead of the DATE/TITLE button on the camcorder in the VIDEO mode.
- 35. A/V DUB Button (only on the remote control)**  
Use this button to record new audio and video over existing audio and video.

## Setting the Date and Time

Take the time to set the date and time now. The date and time can be recorded on your tapes to act as a handy reference when viewing them later. Use the following procedure to set up the display for the current date and time.

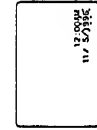
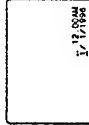
Note: Be sure to insert the clock battery below setting the date and time. Although the date and time can be set without the clock battery inserted, they will disappear when the battery providing power to the camcorder is removed.

Make sure that the current time is displayed correctly before you start filming.

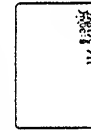


1. Load the battery ("Loading the Batteries: Camcorder batteries" p.15). Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM.

2. Press the DATE/TITLE button and look into the viewfinder. The date and time should appear in the lower right with the "1" flashing.



3. Pressing the F.F button gives you higher numbers while the REW button gives you lower numbers. Select the right month and press the STOP button. Use the F.F, REW and STOP buttons to select the proper day, year, hour, minute, and AM or PM.



4. After setting the AM/PM, press the DATE/TITLE button. The display changes and the internal clock starts.

Note: After the date and time are set, "Q AUTO" appears and the camcorder enters the automatic date recording mode. See "Date Recording" on page 33.

### Correcting the Date and Time

1. Press the DATE/TITLE button while pressing the STOP button. The flashing cursor appears at the month.
2. Move to where you need to make the correction with the STOP button and use the F.F and REW to correct.
3. Press the DATE/TITLE button to set the corrected date and time.

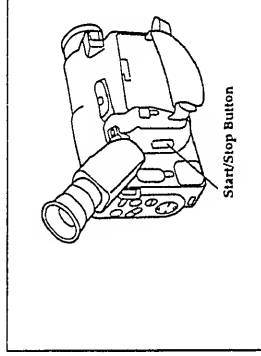
## Simple Playback (Using the Electronic Viewfinder)

1. Insert the cassette ("Inserting and Removing Cassettes," p.18).
2. Hold down the red button on the CAM/OFF/VIDEO switch while sliding the switch to VIDEO.

### Using Still

To view a still picture during playback press the Start/Stop button again to resume playback. If you leave the camcorder in play/pause mode for more than 5 minutes the camcorder automatically stops the cassette to prevent damage to the tape.

Note: When you engage play/pause mode the still picture will have some interference or noise. This is normal.



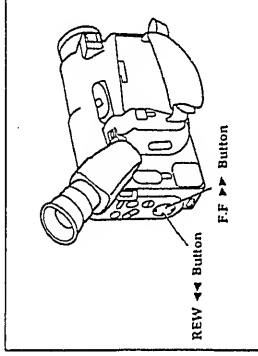
### Using Forward and Reverse Search

When looking for a particular point in your videotape use the F.F button and REW button to find the spot quickly.

- Press F.F button during playback to play the tape forward at approximately 9 times normal speed. Press PLAY button to return to normal playback.

- Press REW button during playback to play the tape backwards at approximately 7 times normal speed. Press PLAY button to return to normal playback.

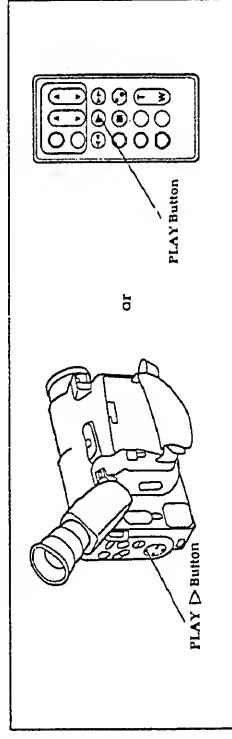
Note: When you engage F.F button or REW button the picture will have some interference or noise. This is normal during search mode.



## To Play Back a Recording at Double the Normal Speed

Activate the video playback mode by moving the CAM/OFF/VIDEO switch to "VIDEO". Press the PLAY button located on either the remote control or the camcorder one time and the video will appear in the viewfinder or a connected monitor. While the tape is playing press the PLAY button again and the camcorder will now play both audio and video at double speed.

To restore normal playback, press the PLAY button on either the remote control or the camcorder.



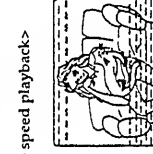
Note: The indication showing double speed playback does not appear.

Note: When double speed playback is activated, both the picture and sound are played back at twice the normal speed. This will cause noise lines to appear on the picture and the sound to become wobbled. (With some tapes the width of the noise band may vary or noise may flow.)

Note: With some TVs, the synchronization may unlock and the picture may fluctuate or the picture may become block-and-while.



<Normal playback>



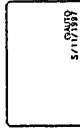
<Double speed playback>

## Date Recording

When the date has been set, the camcorder will enter the automatic date recording mode automatically.

1. Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM.
2. Press the DATE/TITLE button to specify the date display you want to record.

Q AUTO and Date — Automatic Date Recording  
This option records the date automatically once a day at the beginning of recording for 10 seconds.



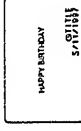
Note: The camcorder records the same date when:  
— the cassette is replaced.  
— you select Q AUTO and date display again.

— the recording is less than 10 seconds long.

Note: If the date changes while recording continues over 10 seconds, the new date is recorded for about 10 seconds the next time you make a recording.

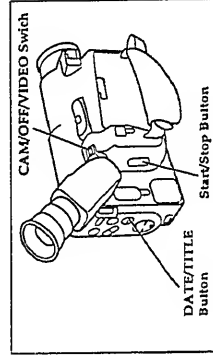
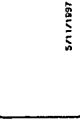
Q TIME and Date — Automatic Title and Date Recording

This option records the date and created title (see "Creating and Recording a Title" on page 43) automatically once a day at the beginning of recording for 10 seconds.



Note: When Q TITLE is displayed in the viewfinder, the title cannot be turned on or off using the remote control.

Date — Date Recording  
The camcorder records the date with the picture all the time.



No Display—No Date Recording  
The camcorder does not record the date.



Date and Time—Date and Time Recording  
The camcorder records the date and time with the picture all the time.



3. Press the start/stop button.

Recording will start.

Note: When Q AUTO and date display is selected, the date disappears about 10 seconds after recording is started.

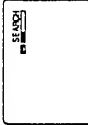
Note: When Q TITLE and date display is selected, the title and date disappear about 10 seconds after recording is started.

## Date Search

The date search function memorizes the start and end positions of recordings you made on a specific day so you can easily locate those positions later as long as the cassette is left in the camcorder.

Note: Be sure that the date and time are set.

1. Attach a power source and slide the CAM/OFF/VIDEO switch to VIDEO.
2. Press the DATE/TITLE button (the DISPLAY button on the remote control) to display "SEARCH" in the viewfinder.



Note: If you have ejected the cassette, this function will not operate with that cassette. (When a cassette is inserted and the recording is started, the position is identified as the recording start position on that day.)

Note: If the date/time battery is not installed, the date search function does not operate when the battery providing the power to the camcorder is removed.

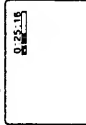
Note: When the cassette was recorded by another camcorder, the date search function does not operate.

Note: The date search function is released when you press the STOP button during date search mode.

Note: If the recorded time is less than 30 seconds, the date search function may not operate normally.

3. Press the REW button to search for the start position from which you last made a recording or the FF button (the F.FWD button on the remote control) to recording end position.

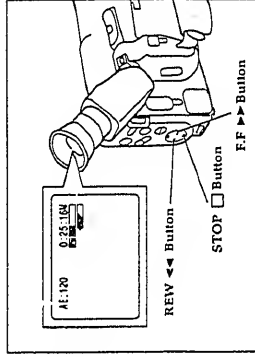
4. When the required position is located, the camcorder enters the stop mode and "SEARCH" disappears from the viewfinder.



## Using Memory

The linear time counter memory stops a rewinding tape at approximately 0:00:00M. This feature helps in locating a specific point in the tape to which you wish to return. An example might be that you have recorded some tape that you have already watched, you continue recording but do not care to watch the tape you recorded earlier. The memory feature returns you to the beginning of the most recent recording.

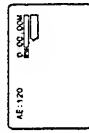
1. Press the DISPLAY button on the remote control so the linear time counter with memory is displayed as shown in the figure.
2. Start recording or playback of a cassette. Press the COUNTER RESET button on the remote control at the point to which you wish to return. The linear time counter clears to 0:00:00M.
3. Press the STOP button to stop playback, or press the start/stop recording and set the CAM/OFF/VIDEO switch to VIDEO.
4. Press the REW button and the tape stops at approximately where you reset the linear time counter. This feature works in F.F. as well.



## Using the Display Button

Pressing the DISPLAY button on the remote control allows you to switch the displays in the viewfinder. When the camcorder is turned on, the linear time counter appears.

- Pressing the DISPLAY button once displays the linear time counter with the memory feature.



- Pressing the DISPLAY button a second time returns to the linear time counter.



Note: The linear time counter with the memory feature in the viewfinder can also be displayed on the connected television.

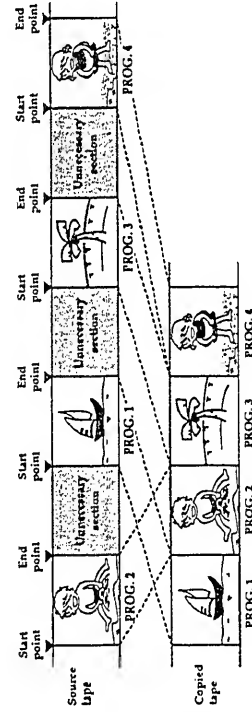
- When a recorded tape is in the camcorder during the VIDEO mode, "SEARCH" appears in the viewfinder. (Refer to "Date Search" on page 40).

## Simple Programmable Edit (Edit remote control is optional accessory)

Simple programmable edit allows you to program your camcorder to select the scenes you want to copy from a pre-recorded tape. Use the edit remote control (optionally) to easily copy scenes from a recorded tape in the camcorder (playback machine) onto a blank tape in a table-top VCR which handles infrared remote signals (recording machine).

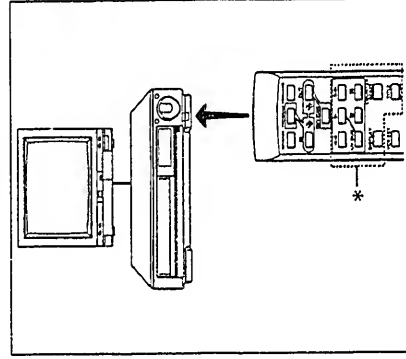
Note: Only the VM-RM20EDA edit remote control (optional) can be used with this camcorder.

Note: Some VCRs cannot be operated by the edit remote control (optional).



## Programming the Remote Control for the VCR

It is necessary to program the edit remote control code to match the VCR before starting editing.



1. Turn the VCR on.
2. Aim the remote control at the infrared receiver on the VCR and press the VCR SET button on the remote control and hold it, then press the button corresponding to the VCR's maker code. For example, if you have a RCA VCR, press the VCR SET button and hold it, then press the DISPLAY button. To check whether the remote control code matches that of your VCR or not, point the remote control at the infrared receiver on the VCR and press the VCR SET button and hold it. If the remote control code has been set, the VCR channel is counted up automatically.

Note: Your VCR should have an Infrared remote control.

Note: If the channel on the VCR does not change with the above operation, you need to switch the remote control code of your VCR. Refer to the VCR's instruction manual. If the channel still does not change after you have changed the VCR's remote control code, the edit remote control cannot operate your VCR.

VCR Brands	Press VCR SET and This Button
Hitachi	REVERSE
Sony	PROGRAM
Panasonic	FORWARD
Toshiba	IN
Mitsubishi	COPY START
Sony	OUT
Sharp	44
NEC	44
JVC	44
Akal	AV DUB
Gold Star	44
Philips	44
RCA	DISPLAY
Zenith	COUNTER RESET
Magnavox	TITLE ON/OFF

Note: The remote control code is held in memory until it is changed or the batteries are replaced.

Note: Point the remote control straight at the VCR's infrared receiver for operation.

Note: Use the remote control indoors. When the infrared receivers of the VCR and camcorder are exposed to direct sunlight or strong artificial light, the remote control may not operate correctly.

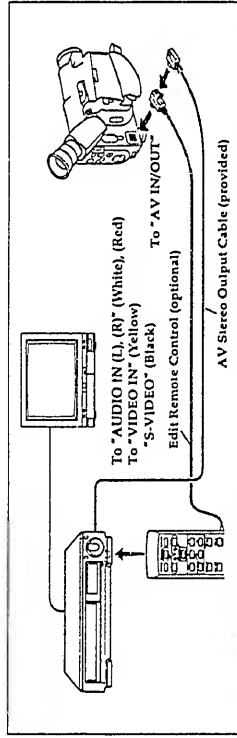
Note: The remote control cannot be operated if there is an obstacle between the remote control and infrared receiver. Especially, be careful of this during dubbing.

Note: When the edit remote control is connected to the camcorder, the buttons marked \* in the figure above perform the same operations as those of the other remote control provided.

## Operation

You can select up to four different scenes or segments to be copied at one time.

Note: If sunlight or strong artificial light strikes the camcorder's infrared receiver, the editing operation may not be possible.



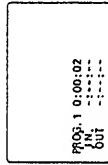
1. Connect the edit remote control to the camcorder, and then connect the AV stereo output cable as illustrated above.

2. Insert a recorded tape into the camcorder.

3. Set the CAM/OFF/VIDEO switch of the camcorder to VIDEO.

Turn the recording VCR on and select line input.

4. Press the PROGRAM button of the remote control. The program display appears in the viewfinder.



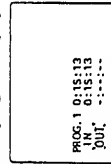
Note: If your VCR is connected to a TV, the program display will also appear on the TV screen.

5. Press the ► button and use the ►► or ◀◀ button to search for the starting point of the segment you want to copy. Press ► and then ►► to set the camcorder to the play pause mode.

The liner time counter counts when searching for the starting point.

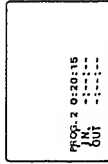
Use the FORWARD and REVERSE buttons in the play or pause mode to fine adjust the tape position. Press FORWARD and hold it; the tape is played while the button is held. Press REVERSE and hold it for reverse play.

6. Press the IN button to store the counter reading. When you press the IN button, OUT flashes in the program display.



7. Press the ►► button to search for the end of the segment you want to copy. Press ►► and then ►► to set the camcorder to the play pause mode. Use the FORWARD or REVERSE button as required to fine adjust the tape position.

8. Press the OUT button to store the counter reading at the end of the scene.



9. Continue programming as described above until you have entered up to four different segments.

10. Load a blank tape, then set the VCR to the record pause mode.

## General Maintenance

### Cleaning the camcorder Heads

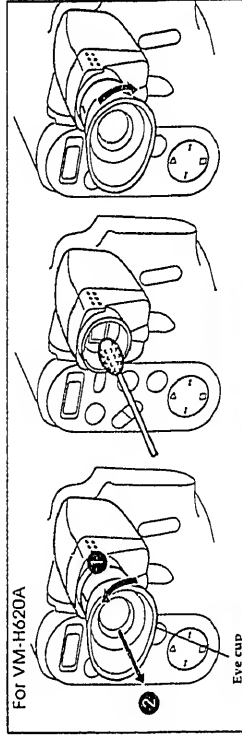
Dirt can accumulate on the video heads on the camcorder causing the playback picture to become blurred or appear as if video information is lost. This often means that the video heads are dirty. Use a video head cleaner such as a dry type head cleaning tape to clean the heads.

If after cleaning the heads the picture does not clear up consult your nearest dealer or VCR service center for professional head cleaning.



### Cleaning the Lens and Picture Tube of the Electronic Viewfinder

The lens of the electronic viewfinder can be user-cleaned if dust, dirt, or other foreign matter adheres to it.



1. Rotate and remove eye cup. 2. Clean the picture tube face and lens. To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper. 3. Fit the projection of the eye cup into the groove in the viewfinder and rotate the eye cup in the direction of the arrow.

### To End Programmable Simple Edit

Press the PROGRAM button to remove the program display from the viewfinder. Then press the stop button on the recording VCR to set it to the stop mode.

Note: If the CAM/OFF/VIDEO switch of the camcorder is set to OFF or CAM when the recording VCR is in the record pause mode, the VCR enters the record mode.

11. Point the remote control at the receiver on the VCR and press the COPY START button to start simple programmable edit.

The camcorder automatically searches for the beginning of the first segment and starts playback. The recording VCR automatically starts recording.

After recording the first segment, the camcorder automatically searches for the beginning of the next segment and resumes playback. The recording VCR is automatically released from the record pause mode and resumes recording.

It continues recording and pausing until all the programmed segments are edited.

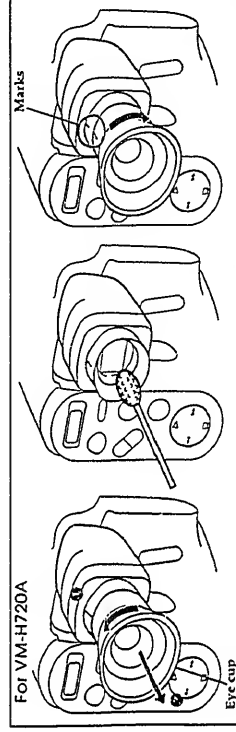
When simple programmable edit is finished, the camcorder will enter the stop mode, and the VCR will enter the record pause mode.

Note: If you make a mistake during programming, start again from the beginning or press the COUNTER RESET button to return to the previous steps one by one and enter the correct program data.

Note: Alter the simple programmable edit is finished, the programmed data is erased. If you want to continue editing other segments, repeat steps 5—12.

Note: Most VCRs (recording machine) may be released from the record pause mode if it continues for more than five minutes.

Note: The dubbing start and end positions may slightly drift from the specified positions when certain VCRs are used.



1. Rotate and remove eye cup. 2. Clean the picture tube face and lens. To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper. 3. Align the reference marks and rotate the eye cup in the direction of arrow.

### Periodic Maintenance

A precision electromechanical device, the Hitachi VM-H620A/H710A requires maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the period of warranty unless the camcorder is used either heavily or seldom. Defective parts are covered by the warranty. Normal maintenance is the responsibility of the owner. Consult your dealer or local VCR service center for recommendations regarding normal maintenance based on your use patterns, location, and the age of the camcorder.

### Troubleshooting

Quality is very important at Hitachi. We inspect and check every camcorder carefully at the factory under the most rigid quality control and inspection systems. If problems develop please check the following possible solutions before inquiring about professional service.

#### INSERTING OR REMOVING THE CASSETTE

Symptom	Check Point & Correction
Cassette holder cannot be opened when you slide EJECT switch.	• Connect the power source.
Cassette cannot be inserted into cassette compartment.	• Load cassette in direction indicated by arrow on cassette. • Cassette window must be toward outside.

#### CAMERA RECORDING

Symptom	Check Point & Correction
Picture does not appear in the viewfinder.	• Remove the lens cap. • Slide the CAM/OFF/VIDEO switch to CAM.
The camcorder cannot go into the recording mode, even when the still/stop button is pressed.	• Disconnect the AV input cable from the camcorder. • Check the record-protect tab on the cassette. See page 14 for details. • Push the cassette holder embossed PUSH LOCK to close it. • Slide the CAM/OFF/VIDEO switch to CAM.

## CAMERA RECORDING (Cont'd)

Symptom	Check Point & Correction
Picture is out of focus. Auto-focus does not operate.	<ul style="list-style-type: none"> <li>Make sure that FOCUS does not appear in the viewfinder. If it is displayed, press FOCUS Control buttons to erase it.</li> <li>Auto-Focus does not operate if a special-effects filter is attached or the objects shown on page 35 are being recorded.</li> <li>Insert the clock battery, then create a title.</li> <li>Do not remove the clock battery after creating a title.</li> </ul>

## RECORDING TV PROGRAMS OFF THE AIR

Symptom	Check Point & Correction
The camcorder cannot be set to the recording mode, even when the Start/Stop button on the camcorder is pressed.	<ul style="list-style-type: none"> <li>Check the record-protect tab on the cassette. See page 19 for details.</li> <li>Set the CAM/OFF/VIDEO switch to CAM.</li> <li>Connect the camcorder and TV or VCR.</li> </ul>

## PLAYBACK OF PRE-RECORDED CASSETTE

Symptom	Check Point & Correction
"PLAY" button cannot be engaged. No picture appears on television screen when "PLAY" button is pressed. (TV is connected to the camcorder by using RF output adapter.)	<ul style="list-style-type: none"> <li>Set the CAM/OFF/VIDEO switch to VIDEO.</li> <li>Set the television to the camcorder channel (301) depending upon the selected channel in the RF channel select switch of RF output adapter.</li> <li>When you see the playback picture on your TV, adjust fine tuning knob on television set to obtain best picture.</li> </ul>
Interference on playback picture. (TV is connected to the camcorder by using RF output adapter.)	<ul style="list-style-type: none"> <li>TV receiver is of older type. It needs to be modified to work properly with camcorder.</li> <li>Tape is damaged. Try another cassette.</li> </ul>
Picture bends at the top of TV screen.	<ul style="list-style-type: none"> <li>TV set has VR circuit. Turn it off during playback.</li> </ul>
Color of your TV screen is too bright, too faint or change.	<ul style="list-style-type: none"> <li>Slide the CAM/OFF/VIDEO switch to VIDEO.</li> </ul>
Date search function does not operate.	<ul style="list-style-type: none"> <li>Insert the clock battery, set the date and time, then start recording.</li> <li>Do not remove the clock battery after recording.</li> <li>Do not eject the recorded cassette. Leave it in the camcorder.</li> </ul>
The playback picture moves rapidly and noise appears. Also sound speeded up from normal is heard.	<ul style="list-style-type: none"> <li>The camcorder is set to the double speed playback mode. Pressing the playback button to restore the normal playback mode. The sound also returns to the normal speed.</li> </ul>
Noise appears in the picture during double speed playback. The sound is not heard. Also, the picture is not in focus.	<ul style="list-style-type: none"> <li>Noise appears in the picture during double speed playback. This indicates not adequate a fault. See page 31 for details.</li> </ul>

## BATTERY CONDITION

Symptom	Check Point & Correction
The ( ) indication in the electronic viewfinder flashes to indicate battery is discharged.	<ul style="list-style-type: none"> <li>Try another battery or charge the battery.</li> </ul>

## NO OPERATION IS ACCEPTED

Symptom	Check Point & Correction
Power is turned on, but no button operations are accepted.	<ul style="list-style-type: none"> <li>Remove the power source and the date/title battery, and wait about one minute. Then insert the battery. The operation will be reset. Then set the information again.</li> </ul>
The camcorder does not operate when alkaline batteries are inserted.	<ul style="list-style-type: none"> <li>Check that the polarities (+, -) of the batteries are correct.</li> <li>Insert six batteries.</li> </ul>

## TAPE DISPLAY

Symptom	Check Point & Correction
TAPE appears in the viewfinder.	<ul style="list-style-type: none"> <li>Have you moved the camcorder or cassette from a cold place to a warm place? If the color has changed abruptly? If the temperature has changed, remove the cassette and set the CAM/OFF/VIDEO switch to Off. Then wait for about one hour.</li> <li>Remove the cassette and then try to reinsert it several times. If the indication is still shown in the viewfinder, use a cleaning tape to clean the heads and replace the cassette.</li> </ul>

# HITACHI

VM-E220A/E520A  
VM-E521A  
VM-H620A/H720A

TK No. 6601E

Image & Information Media Systems Division, Tokai

# HITACHI

## SERVICE MANUAL

### SUPPLEMENT

TK

No.6601E-1

**VM-E220A/E220A(PX)  
VM-E521A**

**TH MECHANISM**

This Service Manual is to supplement the previous manual (No. 6601E) and includes the parts list and exploded views.  
Use this together with the manuals listed below.

**Manuals related to  
the VM-E220A/E220A(PX)/E521A**

Name of manual	Manual No.	Language
VM-E220A/E520A/ E521A/H620A/H720A	6601E	English
TH Mechanism	6406E	English

### CONTENTS

#### CHAPTER 6

##### EXPLODED VIEWS

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- 3. CHASSIS SECTION ..... 4-3
- 4. CAMERA BLOCK SECTION ..... 4-4
- 5. ELECTRONIC VIEWFINDER SECTION ..... 4-5

#### CHAPTER 7

##### REPLACEMENT PARTS LIST

- 1. MECHANICAL PARTS LIST ..... 5-1
- 2. ELECTRICAL PARTS LIST ..... 5-3

**8**

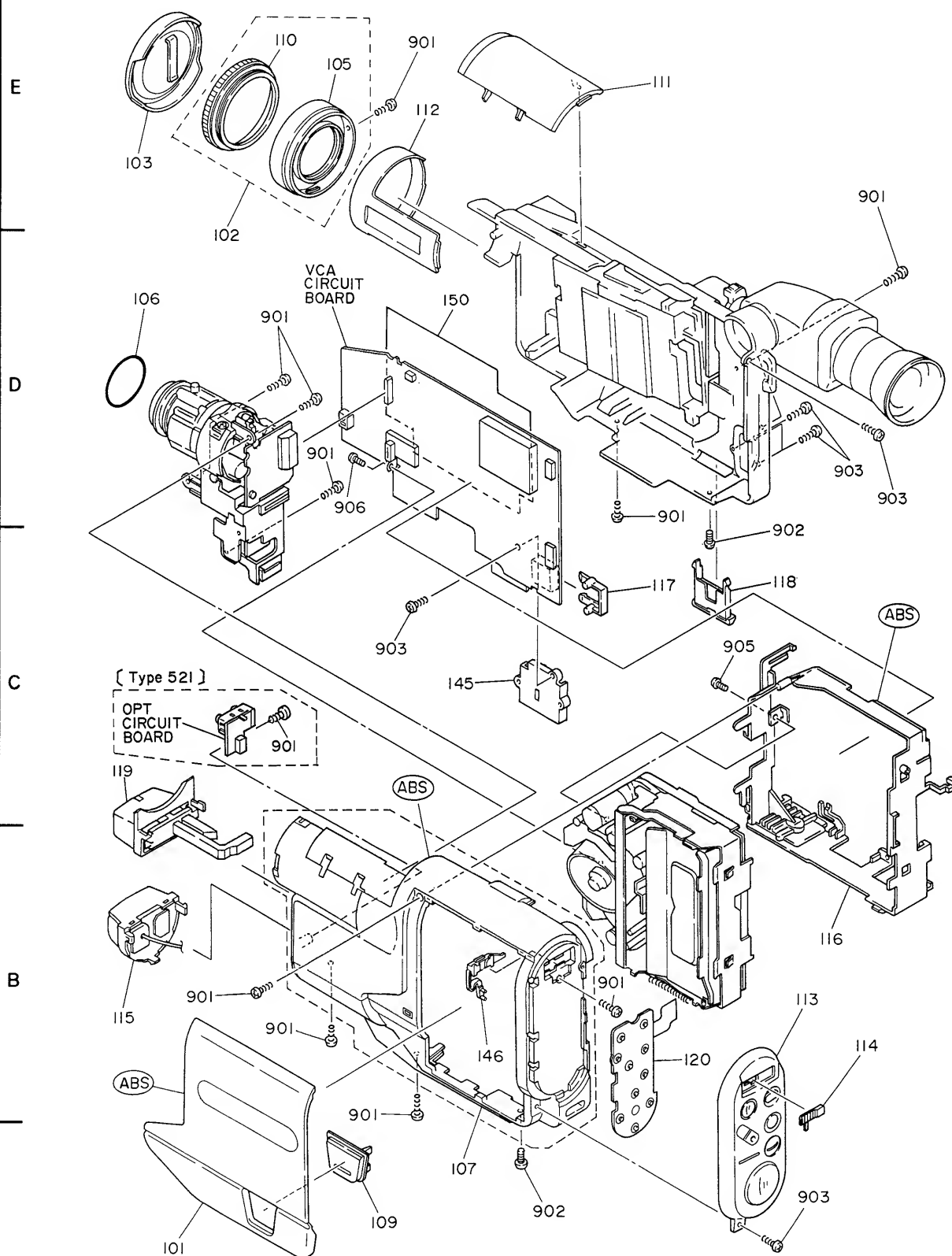
SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

## 8mm VIDEO CAMERA/RECORDER

May 1996 Image & Information Media Systems Division, Tokai

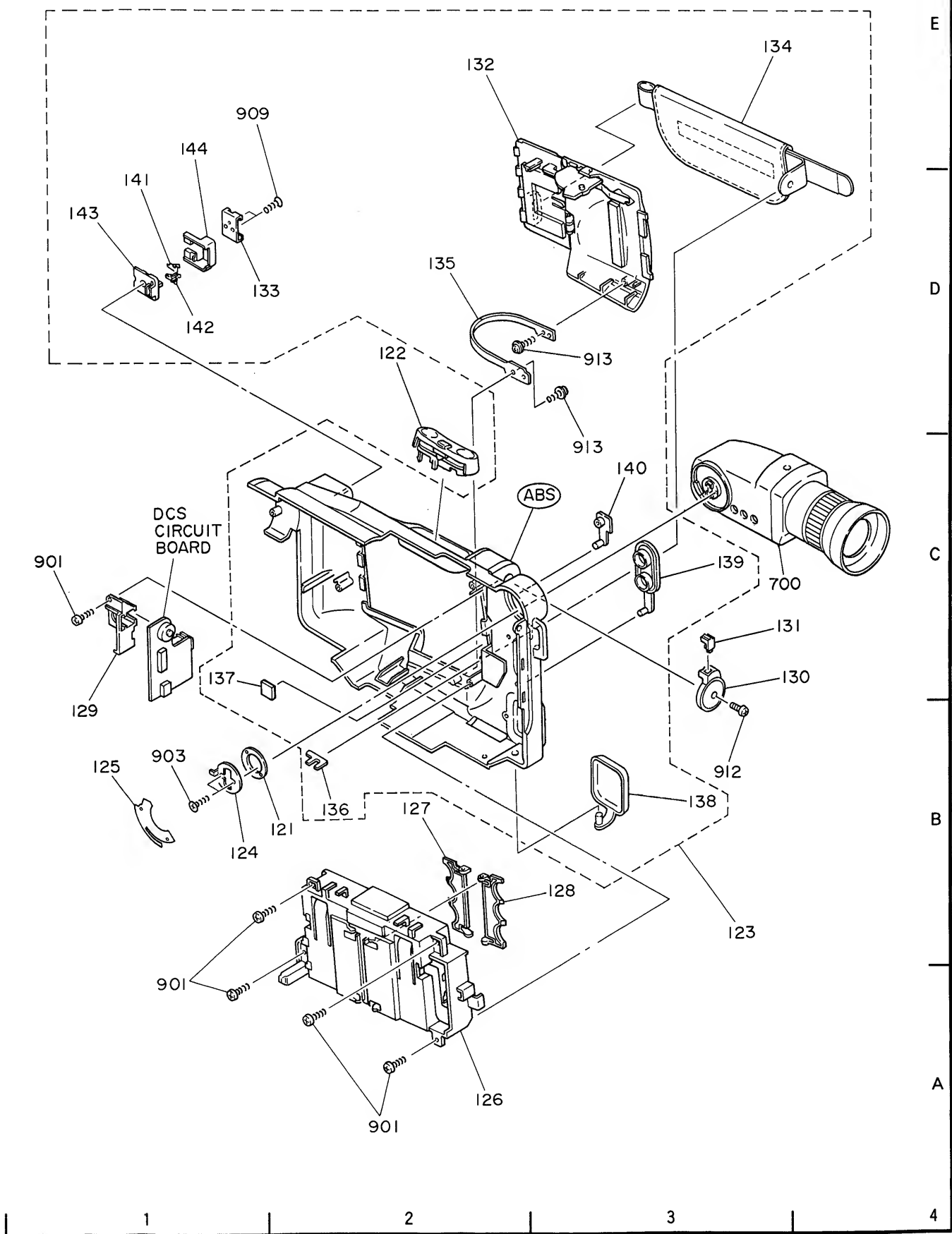


## 1. CABINET SECTION ( I )

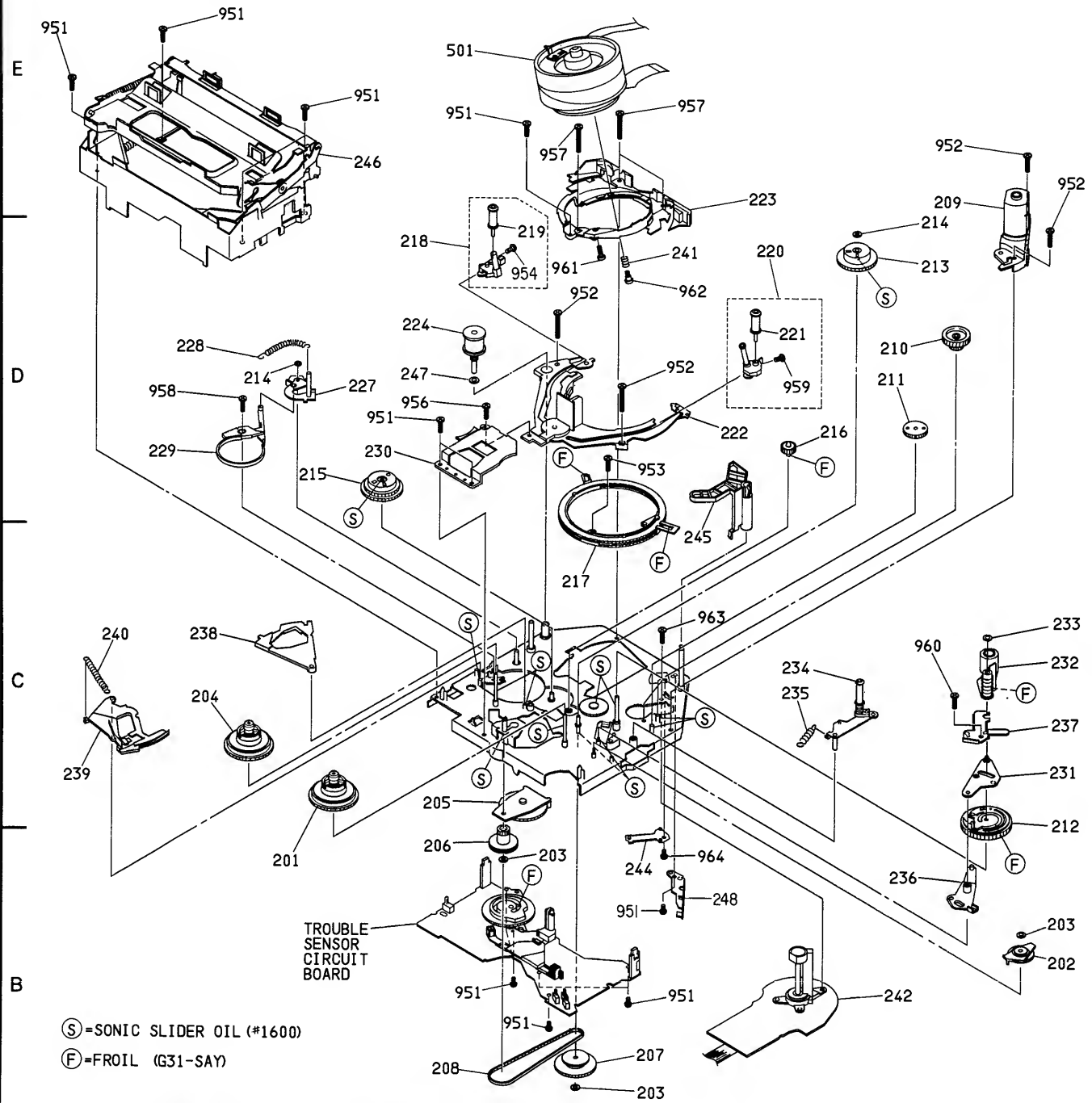


**NOTE :** The synthetic resin members that can be dismantled are shown by abbreviations using letters.

## 2. CABINET SECTION (II)

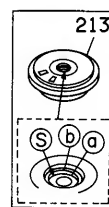
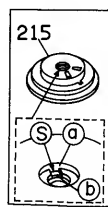
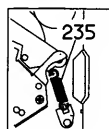
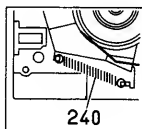
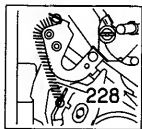


### 3.CHASSIS SECTION



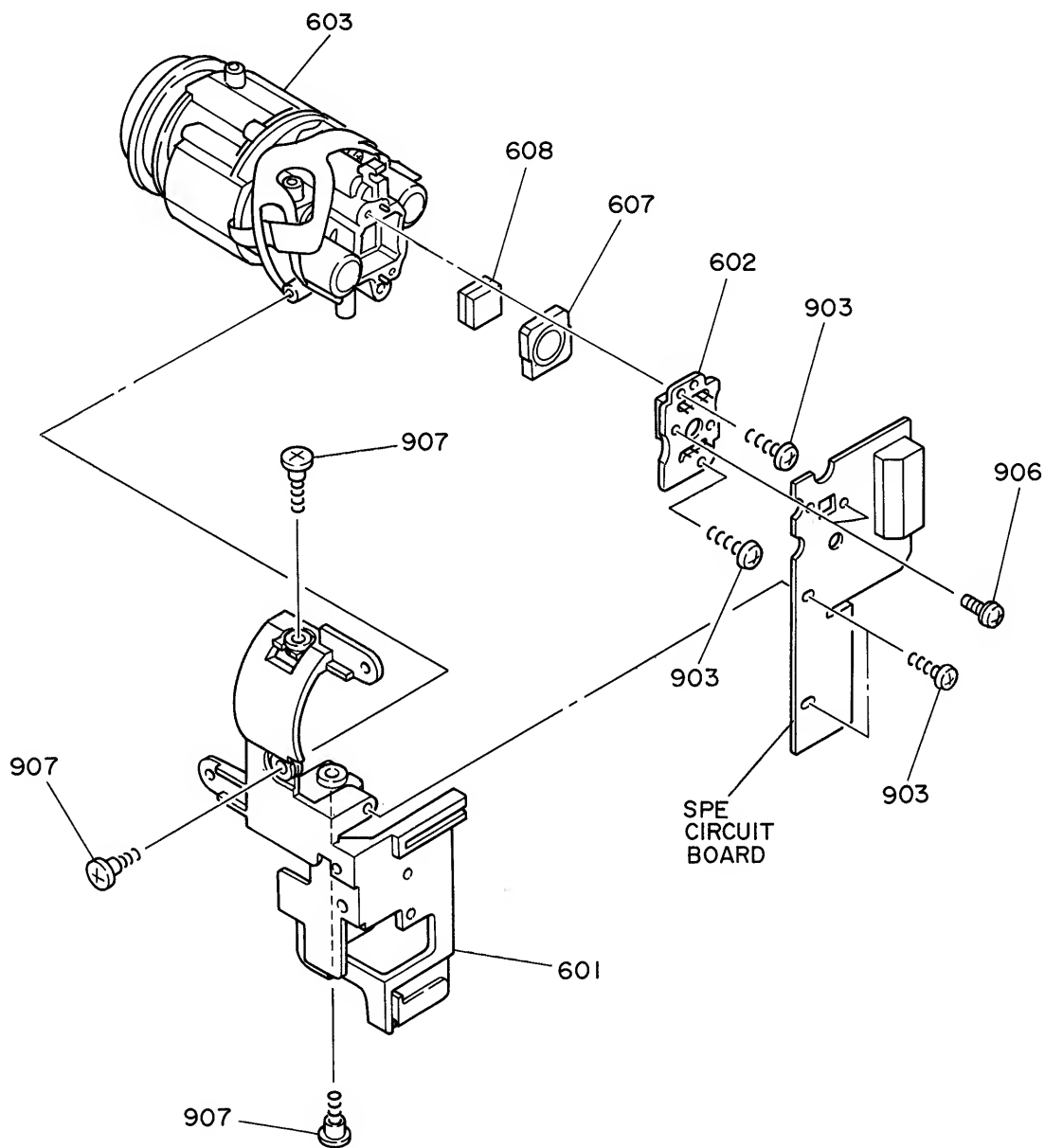
⑤ = SONIC SLIDER OIL (#1600)

⑥ = FROIL (G31-SAY)

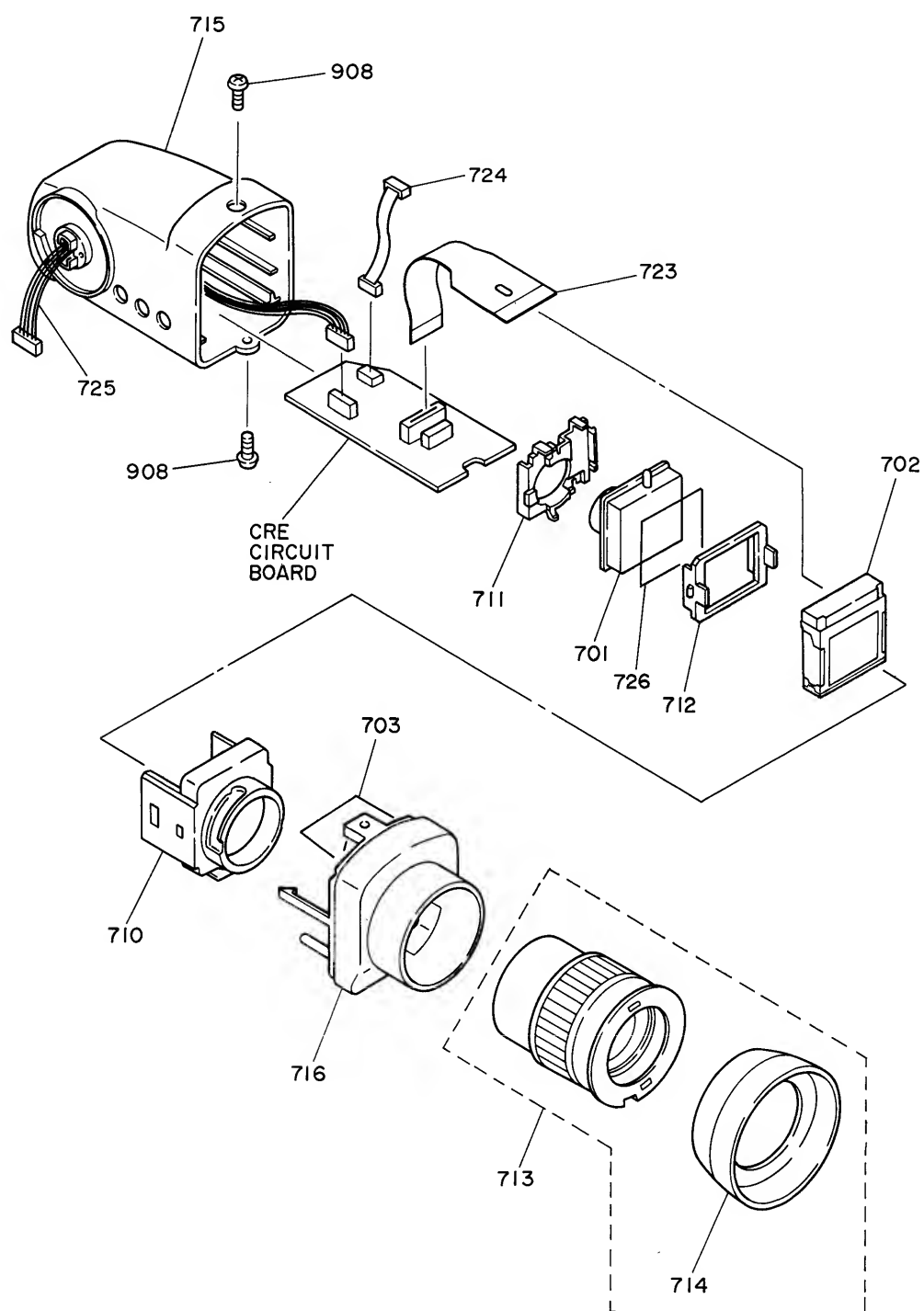


NOTE: If you change the Loading Relay Gears, please use oiler to apply Sonic Slidos oil between ① to ④. If oil is not applied, Loading Relay Geors will be locked.

# 4.CAMERA BLOCK SECTION



# 5.ELECTRONIC VIEWFINDER SECTION



# CHAPTER 5

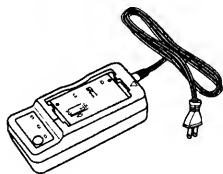

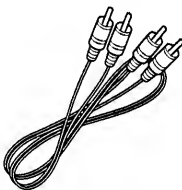



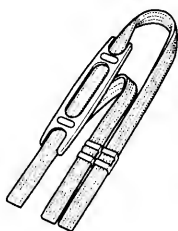

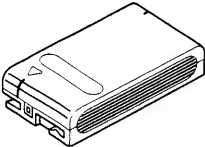
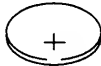

# REPLACEMENT PARTS LIST

## 1.MECHANICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
MECHANISM SECTION			211	6406082	GEAR
101	QD13911	LID, CASSETTE	212	6406242	GEAR
101	QD13913	LID, CASSETTE	213	6405834	GEAR (R)
102	QX10823	RING, LENS	214	7787731	WASHER
103	4799701	CAP, FOOD	215	6405824	GEAR (L)
105	QX10833	RING, LENS	216	6406131	GEAR
106	NX11242	RING	217	4588464	RING, LOADING
107	QD13441	CASE, SIDE (L)	218	4589354	BAS, GUIDE ROLLER(I)
107	QD13442	CASE, SIDE (L)	219	KX10171	GUIDE ROLLER
109	PC11052	BUTTON, LID	220	4589366	BASE, GUIDE ROLLER(O)
110	QX10177	HOOD, LENS	221	4588908	ROLLER, GUIDE
111	QD11732	COVER, TOP	221	KX11161	GUIDE ROLLER
111	QD11734	COVER, TOP	222	4587796	PLATE
112	QD11723	COVER, LENS	223	KX10534	BASE, CYLINDER
113	QD11861	COVER, SWITCH	223	KX10537	BASE, CYLINDER
113	QD11865	COVER, SWITCH	224	6406156	ROLLER, IMPEDANCE
114	PC11061	KNOB, EJECT	227	4589012	ARM, TENSION
115	GH10181	MICROPHONE	228	6554231	SPRING
116	NT10281	FRAME, MECHANISM	229	4588553	BAND, TENSION
117	NJ10411	HOLDER	230	6408832	COVER, IDLER
118	QX10813	CASE, BATTERY	231	NA10601	PLATE
119	QD11701	WINDOW, IR	232	4588294	ARM, PRESSURE ROLLER
119	QD13125	WINDOW, IR	233	7787571	WASHER
120	FH10192	SWITCH ASSY	234	4588702	ARM
121	4899872	SPRING	235	6554201	SPRING
122	5604851	SWITCH, T/W	236	KX10731	LEVER
123	QD11627	CASE, SIDE (R)	237	4588532	SPRING
124	4826123	STOPPER	238	4588429	PLATE
125	4345032	SHEET, EVF	239	4588353	BRAKE
126	QD11684	CASE, BATTERY	240	6554221	SPRING
127	NJ10401	HOLDER, BATTERY (L)	241	6554214	SPRING
127	NJ10471	HOLDER, BATTERY (R)	242	GP10191	MOTOR, CAPSTAN
128	NJ10401	HOLDER, BATTERY (L)	244	5794021	BRUSH
128	NJ10471	HOLDER, BATTERY (R)	245	4588995	COVER
129	NJ10421	HOLDER, JACK	246	KX10761	CASSETTE HOLDER ASSY
130	PC11081	BOTTOM, POWER	247	7789314	WASHER
131	4752651	KNOB, LOCK	248	4827262	BRACKET
132	QD11971	CAP, BATTERY	501	HX10251	CYLINDER ASSY (CY-53CN)
133	QX11041	SHOE	501	HX10253	CYLINDER ASSY (CY-53C3-F)
134	PV10171	STRAP, HAND	601	NT10302	FRAME, LENS
135	NX11531	HINGE	602	UE11256	CCD IMAGE SENSOR ASSY
136	MN10831	SHEET	603	KQ10433	LENS ASSY
137	MU10651	CUSHION	607	NX11251	RUBBER
138	QD11651	COVER, TERMINAL	608	DT10141	CRYSTAL
139	QD11661	COVER, JACK	700	UX10461	EVF ASSY
140	QD11641	COVER, DC	701	CS10321	MODULE HTS9554
141	KL10491	TERMINAL (L)	702	DB10161	LCD
142	KL10501	TERMINAL (R)	703	MN11221	SPACER
143	NJ10541	HOLDER, TERMINAL	710	QD10584	HOLDER, LCD
144	QX11051	COVER, TERMINAL	711	QD10574	COVER LIGHT
145	NX11261	HOLDER, BATTERY	712	QD10612	PIECE
146	NJ10431	HOLDER, EJECT	713	4717043	CASE, ADJUST
150	QL13002	SHEET, BATTERY	714	QX11981	CAP, EYE
201	6404062	REEL DISK, TAKE-UP	715	QD11787	CASE, EVF
202	6406114	GEAR	716	QD12172	CASE, EVF
203	7787733	WASHER	723	JD10211	FLEXIBLE CONNECTOR
204	6404073	REEL DISK, SUPPLY	724	5846771	CONNECTOR
205	6401644	GEAR, IDLER	725	5844972	CONNECTOR
206	6406211	GEAR	726	MU10711	SHEET
207	6406034	GEAR, PULLEY	751	4102531	SCREW
208	6358471	BELT	752	QD13291	CASE, LOWER
209	KX10622	LOADING MOTOR BLOCK	753	4115381	CORD, POWER
210	6376312	GEAR, DRIVE	754	QD13941	CASE, UPPER
			755	QL12833	SHEET, CLEAR
			761	QD13401	CASE, TOP



SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
762	QD13411	CASE, BOTTOM	956	8619065	SCREW (1. 7X6)
763	PH13581	PANEL, SMOKE	957	8700976	SCREW (1. 7X8. 0)
765	MQ10271	LEG, RUBBER	958	7770791	SCREW
766	8699308	SCREW (2. 6X8) BLACK	959	8712904	SCREW (1. 4X2. 0)
767	4115381	CORD, POWER	960	8619063	SCREW (1. 7X3)
768	HP10341	MODULE NTS1034	961	8711105	SCREW (2X5)
901	7775946	SCREW (2X6)	962	7785886	SCREW
902	7775963	SCREW (2X3)	963	8700264	1. 7X2 SCREW
903	7775945	SCREW (2X5)	964	8741103	SCREW (2X3)
905	7773891	SCREW	ACCESSORIES		
906	8650103	SCREW (2X3)	△802	TS11742	AC ADAPTOR (VM-AC85A)
907	MJ10221	SCREW	803	EV10411	CORD, PLUG
908	8700968	SCREW (1. 7X3. 0)	804	EW10941	CORD
909	8639106	SCREW (2X6)	805	5616582	REMOTE HAND SET (VM-RM70A)
912	8700970	SCREW (1. 7X4. 0)	807	TS11791	SHOULDER STRAP
913	MJ10311	SCREW (M2X4. 5)	808	4798221	STRING, CAP
951	8712024	PAN HEAD SCREW-1. 4MMDX3MM	809	TS12312	INFRARED UNIT (VM-IR20A)
952	8700272	SCREW (1. 7X5)			
953	7775921	SCREW (1. 4X2)			
954	8714004	SCREW (1. 4X2. 5)			

Accessories Supplied			
AC ADAPTOR/CHARGER	DC CORD	AV OUTPUT CORD	REMOTE CONTROLLER
			
SHOULDER STRAP	STRING		
			  <p>WARNING : Keep this battery away from children. If swallowed consult a physician immediately for emergency treatment.</p>

## 2.ELECTRICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
VCR & CAMERA SECTION					
C0001	AD10123R	ELECTROLYTIC 22UF 6.3V	C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0002	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0149	0893117	CERAMIC CHIP 22PF+-5% 50V
C0003	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0150	0893114	CERAMIC CHIP 12PF+-5% 50V
C0004	0806153	ELECTROLYTIC 10UF 16V	C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0005	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0152	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0006	0806153	ELECTROLYTIC 10UF 16V	C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0007	0893166	CERAMIC CHIP 220PF+-5% 50V	C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0008	0893004	CERAMIC CHIP 0.047UF+-10% 16V	C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0009	0806133	ELECTROLYTIC 10UF 6.3V	C0156	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0010	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0011	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0163	0806168	ELECTROLYTIC 47UF 6.3V
C0012	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0164	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0013	0893166	CERAMIC CHIP 220PF+-5% 50V	C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0014	0893004	CERAMIC CHIP 0.047UF+-10% 16V	C0168	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0015	0806133	ELECTROLYTIC 10UF 6.3V	C0169	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0016	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0170	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0017	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0171	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0018	0893062	CERAMIC CHIP 1UF+80-20% 16V	C0172	0806153	ELECTROLYTIC 10UF 16V
C0019	0202305	CERAMIC CHIP 510PF+-5% 50V	C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0020	0806133	ELECTROLYTIC 10UF 6.3V	C0174	0806124	ELECTROLYTIC 10UF 4V
C0021	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0175	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0022	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0176	0893117	CERAMIC CHIP 22PF+-5% 50V
C0023	0893202	CERAMIC CHIP 330PF+-10% 50V	C0177	0893152	CERAMIC CHIP 18PF+-5% 50V
C0024	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0178	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0025	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0179	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0026	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0180	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0028	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0181	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0029	0806157	ELECTROLYTIC 22UF 6.3V	C0182	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0051	0893055	CERAMIC CHIP 0.1UF+80-20% 16V	C0183	0806153	ELECTROLYTIC 10UF 16V
C0101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C0184	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0102	0806174	ELECTROLYTIC 100UF 6.3V	C0185	0806023	ELECTROLYTIC 3.3UF 4V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0187	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0188	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0189	0893161	CERAMIC CHIP 82PF+-5% 50V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0190	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0191	0893124	CHIP CERAMIC 68PF+-5% 50V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0205	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893008	CERAMIC CHIP 0.1UF +-10% 16V	C0206	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0207	0893109	CERAMIC CHIP 7.0PF 50V
C0113	0806001	ELECTROLYTIC 0.1UF 35V	C0208	0893127	CERAMIC CHIP 120PF+-5% 50V
C0114	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0213	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0115	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0214	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0215	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0216	0806174	ELECTROLYTIC 100UF 6.3V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0217	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V	C0218	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V	C0219	0806024	ELECTROLYTIC 3.3UF 6.3V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V	C0224	0893127	CERAMIC CHIP 120PF+-5% 50V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0226	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0131	0806168	ELECTROLYTIC 47UF 6.3V	C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0132	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0228	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0134	0893123	CERAMIC CHIP 56PF+-5% 50V	C0229	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0136	0893118	CERAMIC CHIP 27PF+-5% 50V	C0230	0893122	CERAMIC CHIP 47PF+-5% 50V
C0137	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0231	0806168	ELECTROLYTIC 47UF 6.3V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V	C0235	0893124	CHIP CERAMIC 68PF+-5% 50V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V	C0237	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0143	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0238	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0144	0893214	CERAMIC CHIP 2700PF+-10% 50V	C0240	0893114	CERAMIC CHIP 12PF+-5% 50V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0242	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0146	0893115	CERAMIC CHIP 15PF+-5% 50V	C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
			C0244	0806027	ELECTROLYTIC 4.7UF 4V
			C0245	0893208	CERAMIC CHIP 1000PF+-10% 50V
			C0246	0806124	ELECTROLYTIC 10UF 4V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C0247	0806027	ELECTROLYTIC 4.7UF 4V	C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0248	0893115	CERAMIC CHIP 15PF+-5% 50V	C0432	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C0249	0893119	CERAMIC CHIP 33PF+-5% 50V	C0439	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0250	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0251	0806027	ELECTROLYTIC 4.7UF 4V	C0443	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0252	0806149	ELECTROLYTIC 4.7UF 25V	C0445	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0457L	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0254	0806153	ELECTROLYTIC 10UF 16V	C0458	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0255	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C0459	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0256	0893162	CERAMIC CHIP 100PF+-5% 50V	C0460	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0257	0806174	ELECTROLYTIC 100UF 6.3V	C0461	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0258	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0501	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0259	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0502	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V	C0503	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0261	0893117	CERAMIC CHIP 22PF+-5% 50V	C0551	0893155	CERAMIC CHIP 33PF+-5% 50V
C0263	0893011	CERAMIC CHIP 0.15UF+-10% 16V	C0552	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0264	0893169	CERAMIC CHIP 390PF+-5% 50V	C0553	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0265	0893153	CERAMIC CHIP 22PF+-5% 50V	C0555	0209942	CERAMIC CHIP 100PF+-5% 50V
C0270	0893008	CERAMIC CHIP 0.1UF +-10% 16V	C0556	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0271	0806153	ELECTROLYTIC 10UF 16V	C0557	0806153	ELECTROLYTIC 10UF 16V
C0273	0806124	ELECTROLYTIC 10UF 4V	C0558	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0275	0806174	ELECTROLYTIC 100UF 6.3V	C0559	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0352	0806178	ELECTROLYTIC 220UF 4V	C0560	0893202	CERAMIC CHIP 330PF+-10% 50V
C0353	0806124	ELECTROLYTIC 10UF 4V	C0561	0893165	CERAMIC CHIP 180PF+-5% 50V
C0354	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C0562	0893203	CERAMIC CHIP 390PF+-10% 50V
C0357	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0563	0893158	CERAMIC CHIP 56PF+-5% 50V
C0358	0806168	ELECTROLYTIC 47UF 6.3V	C0567	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0359	0806027	ELECTROLYTIC 4.7UF 4V	C0570	0206671	ELECTROLYTIC 10UF 10V
C0360	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0571	0206671	ELECTROLYTIC 10UF 10V
C0363	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0573	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0364	0806124	ELECTROLYTIC 10UF 4V	C0577	0206671	ELECTROLYTIC 10UF 10V
C0365	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C0579	0206671	ELECTROLYTIC 10UF 10V
C0368	0893131	CERAMIC CHIP 220PF+-5% 50V	C0581	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0391	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0582	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0392	0893079	CERAMIC DISC 0.01UF+80-20% 50V	C0585	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0586	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0402L	0893013	CERAMIC CHIP 0.22UF+-10% 16V	C0588	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0403L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0589	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V	C0590	0806157	ELECTROLYTIC 22UF 6.3V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V	C0591	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0406L	0806163	ELECTROLYTIC 33UF 10V	C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0407L	0806018	ELECTROLYTIC 2.2UF 6.3V	C0602	0806149	ELECTROLYTIC 4.7UF 25V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V	C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0607	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0412L	0806117	ELECTROLYTIC 3.3UF 16V	C0608	0893204	CERAMIC CHIP 470PF+-10% 50V
C0413	0806018	ELECTROLYTIC 2.2UF 6.3V	C0609	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0415L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0610	0806153	ELECTROLYTIC 10UF 16V
C0416	0806027	ELECTROLYTIC 4.7UF 4V	C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0417L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0418L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0614	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0419L	0893184	CERAMIC CHIP 0.022UF+-10% 16V	C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0419L	0893216	CERAMIC CHIP 3900PF+-10% 50V	C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0420	0806131	CHIP CAPACITOR 2.2UF+-20% 20V	C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0421	0893186	CERAMIC CHIP 0.033UF+-10% 16V	C0618	0893204	CERAMIC CHIP 470PF+-10% 50V
C0422	0806153	ELECTROLYTIC 10UF 16V	C0619	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0423	0806153	ELECTROLYTIC 10UF 16V	C0636	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0424L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0638	0893226	CERAMIC CHIP 0.15UF+80-20% 16V
C0425	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C0639	0806153	ELECTROLYTIC 10UF 16V
C0426	0893013	CERAMIC CHIP 0.22UF+-10% 16V	C0644	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V	C0645	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V	C0646	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0430L	0893091	CERAMIC CHIP 0.022UF+-10% 16V	C0647	0893184	CERAMIC CHIP 0.022UF+-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C0648	0893211	CERAMIC CHIP 1500PF+-10% 50V	C1130	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0649	0893211	CERAMIC CHIP 1500PF+-10% 50V	C1131	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0650	0893211	CERAMIC CHIP 1500PF+-10% 50V	C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0656	0806153	ELECTROLYTIC 10UF 16V	C1134	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0671	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0672	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1136	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0691	0893206	CERAMIC CHIP 680PF+-10% 50V	C1137	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0692	0893202	CERAMIC CHIP 330PF+-10% 50V	C1138	0893117	CERAMIC CHIP 22PF+-5% 50V
C0693	0893199	CERAMIC CHIP 220PF+-10% 50V	C1139	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C0694	0893191	CERAMIC CHIP 6800PF+-10% 25V	C1141	0806169	ELECTROLYTIC 47UF 16V
C0695	0893217	CERAMIC CHIP 4700PF+-10% 50V	C1142	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0696	0893215	CERAMIC CHIP 3300PF+-10% 50V	C1143	0806168	ELECTROLYTIC 47UF 6.3V
C0901	0806174	ELECTROLYTIC 100UF 6.3V	C1144	0202319	CERAMIC CHIP 22PF+-2% 50V
C0902	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1145	0893125	CERAMIC CHIP 82PF+-5% 50V
C0905	0806168	ELECTROLYTIC 47UF 6.3V	C1146	0893125	CERAMIC CHIP 82PF+-5% 50V
C0906	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0907	0806175	ELECTROLYTIC 100UF 10V	C1148	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0908	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C1149	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0909	0806174	ELECTROLYTIC 100UF 6.3V	C1150	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C0910	0893113	CERAMIC CHIP 10PF+-0.5% 50V	C1151	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C0911	0893113	CERAMIC CHIP 10PF+-0.5% 50V	C1152	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C0915	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1153	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C0916	0893118	CERAMIC CHIP 27PF+-5% 50V	C1154	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C0917	0893119	CERAMIC CHIP 33PF+-5% 50V	C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0918	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0919	0893119	CERAMIC CHIP 33PF+-5% 50V	C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0920	0893126	CERAMIC CHIP 100PF+-5% 50V	C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0923	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1161	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0924	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1162	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0925	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0927	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1164	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0928	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0930	0806174	ELECTROLYTIC 100UF 6.3V	C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0931	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0932	0806169	ELECTROLYTIC 47UF 16V	C1168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0933	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1169	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0934	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1170	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0935	0806169	ELECTROLYTIC 47UF 16V	C1173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0936	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1174	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0939	0893239	CERAMIC CHIP 0.01UF+80-20% 50V	C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0940	0202328	CERAMIC CHIP 1.0UF+80-20% 16V	C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V	C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1102	0893008	CERAMIC CHIP 0.1UF +-10% 16V	C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1103	0893014	CERAMIC CHIP 0.01UF+-10% 25V	C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V	C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1106	0893062	CERAMIC CHIP 1UF+80-20% 16V	C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1107	0806168	ELECTROLYTIC 47UF 6.3V	C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1109	0806169	ELECTROLYTIC 47UF 16V	C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1110	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1111	0893067	CERAMIC CHIP 0.1UF+80-20% 25V	C1212	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1113	0893067	CERAMIC CHIP 0.1UF+80-20% 25V	C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1116	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1117	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1119	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1120	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1122	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1124	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1125	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1126	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1311	0806169	ELECTROLYTIC 47UF 16V
C1127	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C1312	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1128	0893079	CERAMIC DISC 0.01UF+80-20% 50V	C1313	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1129	0893079	CERAMIC DISC 0.01UF+80-20% 50V	C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
C1401	0806157	ELECTROLYTIC 22UF 6.3V	R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
C1402	0806157	ELECTROLYTIC 22UF 6.3V	R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0112	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
C1405	0806167	ELECTROLYTIC 47UF 4V	R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
C1406	0806167	ELECTROLYTIC 47UF 4V	R0115	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
C1407	0893209	CERAMIC CHIP 1200PF 50V	R0116	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1408	0893209	CERAMIC CHIP 1200PF 50V	R0117	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C1409	0893209	CERAMIC CHIP 1200PF 50V	R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C1410	0893209	CERAMIC CHIP 1200PF 50V	R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
C1411	0206647	ELECTROLYTIC 10UF 10V	R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
C1412	0206647	ELECTROLYTIC 10UF 10V	R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
C1413	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
C1414	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
C1416	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
C1417	0806157	ELECTROLYTIC 22UF 6.3V	R0128	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V	R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0001	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0130	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0005	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0132	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0006	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0133	0105681	CHIP RESISTOR 2.7KOHM+-1% 1/16W
R0007	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0134	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0008	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0138	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0009	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0141	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0010	0103930	CHIP RESISTOR 390OHM+-5% 1/8W	R0142	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0010	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0011	0103838	RESISTOR CHIP 390OHM+-5% 0.1W	R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0011	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0146	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0012	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0013	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0014	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0015	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0016	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0017	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W	R0154	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0018	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	R0156	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0019	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0157	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0020	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0158	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0021	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0022	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0160	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0023	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0025	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0164	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0026	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0027	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0028	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W	R0168	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0029	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W	R0170	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0030	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W	R0171	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0031	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0172	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0032	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	R0173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0033	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W	R0174	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0034	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W	R0175	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0035	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0036	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R0180	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0037	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0181	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0040	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0182	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0043	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	R0183	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0052	0103813	CHIP RESISTOR 3.3 OHM+-10% 0.1W	R0184	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0185	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W	R0186	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W	R0187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0105	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0191	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R0192	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W	R0428	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W	R0429L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0194	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W	R0435	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0196	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0436L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0198	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0445	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0199	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W	R0447	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0460	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0205	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	R0461L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0208	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	R0462L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0463L	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W	R0464	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W	R0465	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0466	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0467	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0468	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0222	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W	R0469	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0223	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0470	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0501	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0225	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0502	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0227	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	R0503	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0229	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0234	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0508	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0236	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0509	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0239	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W	R0551	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0240	0105702	CHIP RESISTOR 16KOHM+-5% 1/16W	R0552	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R0553	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0558	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	R0560	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0250	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W	R0563	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0564	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0254	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0565	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0261	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0567	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0267	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0570	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0268	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0571	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0273	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	R0575	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0295	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W	R0577	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0296	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0578	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0298	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W	R0583	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0355	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0586	AQ10271R	CHIP RESISTOR 100 OHM+-0.5% 1/16W
R0357	0105688	CHIP RESISTOR 2.2KOHM+-1% 1/16W	R0588	AQ10272R	CHIP RESISTOR 390 OHM+-0.5% 1/16W
R0358	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W	R0591	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0359	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W	R0593	AQ10273R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0362	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0594	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0364	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0366	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0602	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0367	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R0603	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0371	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	R0606	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0373	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0609	0105706	CHIP RESISTOR 24KOHM+-5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W	R0610	0105691	CHIP RESISTOR 24KOHM+-1% 1/16W
R0390	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0391	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0612	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0392	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W	R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0397	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W	R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0401L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0616	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W	R0619	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0403L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0405	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0408	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0410	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W	R0624	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0415	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0631	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R0632	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0418L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W	R0636	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0419L	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	R0641	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W



SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R0642	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W	R0943	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0661	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0944	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0662	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0945	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0663	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0946	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R0949	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0951	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0952	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0957	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0688	0104567	CHIP RESISTOR 150KOHM+-0.1% 1/16W	R0959	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0689	0105675	CHIP RESISTOR 100KOHM+-1% 1/16W	R0962	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0691	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0963	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0692	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0964	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0693	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W	R0965	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0694	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0966	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R0695	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0967	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0696	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R0968	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0697	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R0969	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0698	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0970	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0699	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0971	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0714	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0972	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0715	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R0973	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0718	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0974	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0720	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0975	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0728	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0977	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0729	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0730	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0731	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R0980	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0737	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0981	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0982	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0902	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0983	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0903	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W	R0984	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0904	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R0985	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0986	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0906	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R0987	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0907	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	R0988	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0908	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0989	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0909	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0990	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0910	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R0991	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0911	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R0994	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0912	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1102	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R1103	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1104	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1105	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1106	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0917	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0918	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0919	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1109	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0920	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W	R1110	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0921	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1113	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0922	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1114	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R0923	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1116	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0924	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1117	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0925	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1118	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0926	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0929	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1120	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R0930	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R1121	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R0931	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1122	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R0932	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1123	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W
R0933	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0935	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1125	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R0937	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W	R1126	0104573	CHIP RESISTOR 1.2KOHM+-1% 1/16W
R0938	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W	R1130	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0939	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1131	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0940	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R1132	0104534	CHIP RESISTOR 1.8KOHM+-1% 1/16W
R0942	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	R1133	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R1134	0104502	CHIP RESISTOR 820 OHM+-1% 1/16W	R1404	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1135	0104553	CHIP RESISTOR 15KOHM+-1% 1/16W	R1405	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	R1406	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W	R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W	R1409	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	R1410	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1146	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1411	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1147	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1412	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W	R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1151	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0001	5040202	SEMI VARIABLE 2.2KOHM
R1152	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	RT0002	5040202	SEMI VARIABLE 2.2KOHM
R1153	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W	RT0003	5040204	SEMI VARIABLE 10KOHM
R1158	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0004	5040204	SEMI VARIABLE 10KOHM
R1159	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W	RT0005	5040202	SEMI VARIABLE 2.2KOHM
R1162	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W	RT0103	5040201	VARIABLE RESISTOR 470 OHM
R1164	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W	RT0203	5040205	VARIABLE RESISTOR 4.7KOHM
R1171	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W	RT0204	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
R1172	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W	RT0205	5040204	VARIABLE RESISTOR 10KOHM
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W	RT0206	0104159	CHIP RESISTOR 1.5KOHM+-10% 1/8W
R1202	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W	RT0207	5040205	VARIABLE RESISTOR 4.7KOHM
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	RT0209	5040205	VARIABLE RESISTOR 4.7KOHM
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	RT0210	5040201	VARIABLE RESISTOR 470 OHM
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	RT0211	0104159	CHIP RESISTOR 1.5KOHM+-10% 1/8W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	RT0212	5040202	SEMI VARIABLE 2.2KOHM
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	RT0215	5040204	VARIABLE RESISTOR 10KOHM
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	RT0216	0104731	CHIP RESISTOR 5.6KOHM+-10% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	D0001	5337422	DIODE DA221
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	D0001	CH10451	DIODE GL453J
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	D0051	CH10521	DIODE DNF318U-1
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	D0052	CH10521	DIODE DNF318U-1
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W	D0101	5337422	DIODE DA221
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0352	5337351	DIODE MA132WK
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0394	5337422	DIODE DA221
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0401	5337422	DIODE DA221
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W	D0551	5337372	DIODE SB07-03C
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	D0554	5337352	DIODE MA132WA
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	D0556	5326021	DIODE MA160-MID
R1221	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W	D0601	CC10291R	DIODE 1SS353
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W	D0901	CC10291R	DIODE 1SS353
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W	D0902	CC10291R	DIODE 1SS353
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D0905	CC10291R	DIODE 1SS353
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D1101	5337372	DIODE SB07-03C
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D1102	CC10291R	DIODE 1SS353
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W	D1103	5328305	DIODE MA151WA
R1306	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	D1104	5382911	DIODE LT1D82A
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	D1303	5337422	DIODE DA221
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	D1403	5328305	DIODE MA151WA
R1310	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	IC0001	CK13391R	IC AN2001SB
R1313	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	IC0101	1366631	IC HA118189MP
R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC0102	CK13461R	IC UPC5023GS-101-E1
R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W	IC0201	1366901	IC HA118372F
R1317	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W	IC0202	CK12041R	IC CXL5516N
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	IC0203	1352331	IC CXL5507M
R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W	IC0204	CK13471R	IC UPC5023GS-104-E1
R1330	0104579	CHIP RESISTOR 12KOHM+-1% 1/16W	IC0401	CK12231	IC HA118193F
R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	IC0551	1366251	IC TL1464IPT
R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W	IC0601	CK12151R	IC UPC5023GS-079-E1
R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	IC0631	CK14251R	IC LB1888V
R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W	IC0671	1366651	IC BA6417F
R1401	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W	IC0901	CK12177U	IC CXP87240A-107Q
R1402	0103821	CHIP RESISTOR 15 OHM+-5% 0.1W	IC0902	1352582	IC S-84206F
R1403	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W	IC0903	1366081	IC HD74HCT125T

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
IC0904	1366612	IC XLU5949AFS	Q0556	CA10271R	TRANSISTOR 2SB1424
IC0907	CJ10201	TRANSISTOR GP1U261X	Q0557	1323321	TRANSISTOR 2SD2216
IC1101	1366681	IC HA118184F	Q0602	1323321	TRANSISTOR 2SD2216
IC1102	1365392	IC HD49319AF	Q0691	1323321	TRANSISTOR 2SD2216
IC1103	CK12132U	IC HG51CS035TEA	Q0692	CA10271R	TRANSISTOR 2SB1424
IC1104	CK12061R	IC UPD16510GR	Q0901	1323251	TRANSISTOR XP4601
IC1106	CK13801U	IC HD6433042T13F	Q0903	1323081	TRANSISTOR 2SA1036K
IC1107	CK14171R	IC MX25S67MR	Q0904	1323231	TRANSISTOR 2SB1462
IC1201	CK13791R	IC UPC5023GS-105-E1	Q0905	1323321	TRANSISTOR 2SD2216
IC1301	1366804	IC MPC17AT85VMEL	Q0908	1323271	TRANSISTOR DTC144EE
IC1302	1366804	IC MPC17AT85VMEL	Q1101	CA10583R	TRANSISTOR 2SB709A
IC1401	FU10171	GYRO SENSOR ENC-05EA-02	Q1103	5328192	TRANSISTOR 2SC2462LD
IC1402	FU10172	GYRO SENSOR ENC-05EB-02	Q1104	CA10583R	TRANSISTOR 2SB709A
IC1403	CK11721R	IC NJU7032M	Q1105	CA10583R	TRANSISTOR 2SB709A
IC1404	1359931	IC TC4W66F	Q1106	CA10583R	TRANSISTOR 2SB709A
Q0001	1322341	TRANSISTOR PT4810F	Q1107	5328192	TRANSISTOR 2SC2462LD
Q0001	1323301	TRANSISTOR 2SB1219	Q1109	1323271	TRANSISTOR DTC144EE
Q0002	5327521	PHOTO TRANSISTOR SPI-315-C	Q1110	5328192	TRANSISTOR 2SC2462LD
Q0003	1323252	TRANSISTOR XP4501	Q1201	5328192	TRANSISTOR 2SC2462LD
Q0003	5327521	PHOTO TRANSISTOR SPI-315-C	Q1202	1323141	TRANSISTOR 2SC2411K
Q0004	1322341	TRANSISTOR PT4810F	Q1401	1323271	TRANSISTOR DTC144EE
Q0004	1323252	TRANSISTOR XP4501	△T0551	5148333	TRANSFORMER, POWER
Q0005	1323252	TRANSISTOR XP4501	L0001	0773003	COIL 47UH
Q0051	CA10691R	TRANSISTOR 2SD1366A	L0002	0773002	COIL 22UH
Q0101	1323301	TRANSISTOR 2SB1219	L0003	0773119	CHOKE COIL 12UH+-5%
Q0102	1323231	TRANSISTOR 2SB1462	L0101	0773003	COIL 47UH
Q0103	1323231	TRANSISTOR 2SB1462	L0102	0773094	CHOKE COIL 100UH+-10%
Q0104	1323181	TRANSISTOR XP4213	L0103	0773124	CHOKE COIL 27UH+-5%
Q0105	1323301	TRANSISTOR 2SB1219	L0104	0773003	COIL 47UH
Q0107	1323231	TRANSISTOR 2SB1462	L0105	0773117	CHOKE COIL 8.2UH+-5%
Q0108	1323271	TRANSISTOR DTC144EE	L0107	0773134	CHOKE COIL 150UH+-5%
Q0109	1323231	TRANSISTOR 2SB1462	L0108	0773135	CHOKE COIL 180UH+-5%
Q0110	5326471	TRANSISTOR 2SB1218 (R)	L0109	5129255	COIL 470UH
Q0112	1323321	TRANSISTOR 2SD2216	L0110	0773124	CHOKE COIL 27UH+-5%
Q0117	1323173	TRANSISTOR UN9212	L0111	5129256	COIL 33UH
Q0120	5326454	TRANSISTOR DTA124EU	L0170	0773091	CHOKE COIL 33UH
Q0123	1323321	TRANSISTOR 2SD2216	L0171	0773091	CHOKE COIL 33UH
Q0170	1323301	TRANSISTOR 2SB1219	L0172	0773129	CHOKE COIL 68UH+-5%
Q0171	1323253	TRANSISTOR XP4401	L0203	0773118	CHOKE COIL 10UH+-5%
Q0173	1323253	TRANSISTOR XP4401	L0204	0773133	CHOKE COIL 120UH+-5%
Q0175	1323321	TRANSISTOR 2SD2216	L0206	0773088	CHOKE COIL 15UH
Q0176	1323231	TRANSISTOR 2SB1462	L0350	0773003	COIL 47UH
Q0210	1323321	TRANSISTOR 2SD2216	L0401	0773003	COIL 47UH
Q0216	1323173	TRANSISTOR UN9212	L0552	BA10127R	COIL 10UH
Q0217	1323271	TRANSISTOR DTC144EE	L0553	BA10128R	COIL 22UH
Q0218	1323271	TRANSISTOR DTC144EE	L0554	BA10135R	COIL 10UH
Q0225	1323231	TRANSISTOR 2SB1462	L0556	BA10127R	COIL 10UH
Q0226	1323271	TRANSISTOR DTC144EE	L0558	BA10129R	COIL 47UH
Q0350	1323321	TRANSISTOR 2SD2216	L0560	0773001	CHOKE COIL 10UH+-10%
Q0352	1323231	TRANSISTOR 2SB1462	L0561	0773004	COIL 100UH
Q0353	1323361	TRANSISTOR XP1501	L0562	0773004	COIL 100UH
Q0356	1323321	TRANSISTOR 2SD2216	L0601	0773087	CHOKE COIL 10UH+-10%
Q0390	1323271	TRANSISTOR DTC144EE	L0901	0773004	COIL 100UH
Q0401L	1323171	TRANSISTOR UN9213	L0902	0773121	CHOKE COIL 15UH+-5%
Q0403L	1323321	TRANSISTOR 2SD2216	L1101	0773003	COIL 47UH
Q0404	1323321	TRANSISTOR 2SD2216	L1102	0773003	COIL 47UH
Q0407	1323171	TRANSISTOR UN9213	L1103	0773001	CHOKE COIL 10UH+-10%
Q0408L	1323361	TRANSISTOR XP1501	L1106	0773094	CHOKE COIL 100UH+-10%
Q0409	1323321	TRANSISTOR 2SD2216	L1109	0773001	CHOKE COIL 10UH+-10%
Q0410	1323321	TRANSISTOR 2SD2216	L1110	0773001	CHOKE COIL 10UH+-10%
Q0501	5326513	TRANSISTOR 2SB1188 (R)	L1301	0773001	CHOKE COIL 10UH+-10%
Q0502	1323321	TRANSISTOR 2SD2216	L1302	0773001	CHOKE COIL 10UH+-10%
Q0551	CA10271R	TRANSISTOR 2SB1424	X0201	1930211	CRYSTAL
Q0553	1308011	TRANSISTOR MPL1	X0901	1930171	CRYSTAL
Q0554	5326502	TRANSISTOR 2SD1766 (R)	X0902	BL10311R	CRYSTAL

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
X1101	1930094	CRYSTAL	C2106	0893062	CERAMIC CHIP 1UF+80-20% 16V
BL0501	BV10201R	CHOKE COIL	C2108	0806153	ELECTROLYTIC 10UF 16V
CN0001	5845867	CONNECTOR	C2110	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
CN0502	5847081	CONNECTOR	C2113	0893188	CERAMIC CHIP 0.047UF+-10% 16V
CN0503	5845861	CONNECTOR	C2114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
CN0901	1880371	CONNECTOR	C2119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
CP0202	BE10231R	LC FILTER	C2120	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
CP0203	BE10341R	FILTER, BAND PASS	C2121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
CP0204	BE10343R	FILTER, BAND PASS	C2122	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
CP1101	5172675	FILTER, LOW PASS	C2123	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
△F0501	5723232	FUSE 2A	C2124	0893231	CERAMIC CHIP 0.068UF+80-20% 25V
△F0502	5723231	FUSE 1.6A	C2136	0893062	CERAMIC CHIP 1UF+80-20% 16V
JK0200	5695291	SOCKET	C2137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
JK0201	ES10242	JACK, AV	C2138	0893193	CERAMIC CHIP 0.01UF+-10% 25V
JK0501	5693601	DC JACK	C2141	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
PG0001	5666921	MINI PLUG	C2181	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
PG0001	5668672	PLUG	C2182	0806158	ELECTROLYTIC 22UF 16V
PG0051	5668672	PLUG	C2183	0806174	ELECTROLYTIC 100UF 6.3V
PG0101	EA10501R	PLUG	C2184	0806149	ELECTROLYTIC 4.7UF 25V
PG0401L	5668671	MINI PLUG	C2185	0893008	CERAMIC CHIP 0.1UF +-10% 16V
PG0501	1830322	PLUG	C2187	0806153	ELECTROLYTIC 10UF 16V
PG0502	5668671	MINI PLUG	C2203	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
PG0503	5668675	PLUG	C2204	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
PG0551	5669037	MINI PLUG	C2205	0893175	CERAMIC CHIP 1000PF+-5% 50V
PG0601	5692362	MINI PLUG	C2207	0893175	CERAMIC CHIP 1000PF+-5% 50V
PG0602	EA10641R	PLUG	C2211	0206673	ELECTROLYTIC 33UF 6.3V
PG0603	5668753	MINI PLUG	C2212	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
PG0604	5668671	MINI PLUG	C2213	0893175	CERAMIC CHIP 1000PF+-5% 50V
PG0901	5668572	MINI PLUG	C2214	0893127	CERAMIC CHIP 120PF+-5% 50V
PG0902	5668752	MINI PLUG	C2215	0893217	CERAMIC CHIP 4700PF+-10% 50V
PG0903	5669194	PLUG	C2216	0806019	ELECTROLYTIC 2.2UF 10V
PG1101	1830343	PLUG	C2217	0202025	CERAMIC DISC 4700PF+-5% 50V
PG1102	1830351	PLUG	C2218	0806149	ELECTROLYTIC 4.7UF 25V
PG1301	EA10407R	CONNECTOR	C2219	0893154	CERAMIC CHIP 27PF+-5% 50V
△QF1301	FM10112R	FUSE 0.2A	C2220	0893154	CERAMIC CHIP 27PF+-5% 50V
S0003	5636171	SWITCH	C2221	0893154	CERAMIC CHIP 27PF+-5% 50V
S0004	5636171	SWITCH	C2222	0893154	CERAMIC CHIP 27PF+-5% 50V
S0005	5636171	SWITCH	C2223	0893154	CERAMIC CHIP 27PF+-5% 50V
S0006	5635331	SWITCH	C2224	0893154	CERAMIC CHIP 27PF+-5% 50V
S0007	5613523	SWITCH	C2225	0893154	CERAMIC CHIP 27PF+-5% 50V
S0501	FD10201	SWITCH	C2226	0893154	CERAMIC CHIP 27PF+-5% 50V
S0502	FE10151	SWITCH	C2227	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
S0902	FH10192	SWITCH ASSY	R2101	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
SW0901	1742012	SWITCH	R2102	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
			R2103	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
B/W EVF[EMQ]SECTION			R2104	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
C1002	0806169	ELECTROLYTIC 47UF 16V	R2105	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
C1003	0893044	CERAMIC CHIP 0.01UF+-10% 50V	R2106	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
C1004	0893234	CERAMIC CHIP 1500PF+80-20% 50V	R2107	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
C1005	0806163	ELECTROLYTIC 33UF 10V	R2108	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V	R2109	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
C1007	0893113	CERAMIC CHIP 10PF+-0.5% 50V	R2110	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W	R2111	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W	R2112	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W	R2113	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1004	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W	R2115	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 220HM+-5% 0.1W	R2118	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
D1001	CC10291R	DIODE 1SS353	R2119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
IC1001	UE11256	CCD IMAGE SENSOR ASSY	R2120	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
Q1001	5328221	TRANSISTOR 2SC2620-QC	R2121	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
PG1001	1830344	PLUG	R2122	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
C2102	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2125	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
C2104	0893062	CERAMIC CHIP 1UF+80-20% 16V	R2126	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
C2105	0893191	CERAMIC CHIP 6800PF+-10% 25V	R2128	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
			R2129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
R2139	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W			
R2140	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W			
R2142	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W			
R2143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W			
R2148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W			
R2151	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W			
R2153	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W			
R2154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W			
R2181	0105593	CHIP RESISTOR 680 OHM+-5% 1/2W			
R2182	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W			
R2184	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W			
R2202	0105697	CHIP RESISTOR 390KOHM+-1% 1/16W			
R2203	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W			
R2204	0105202	CHIP RESISTOR 39KOHM+-0.5% 1/16W			
R2207	0104514	CHIP RESISTOR 1.96KOHM+-1% 1/16W			
R2208	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W			
R2209	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W			
R2210	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W			
R2211	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W			
R2212	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W			
R2213	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W			
R2215	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W			
R2216	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W			
R2217	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W			
RT2101	AW10168	TIMMER RESISTOR			
RT2102	AW10168	TIMMER RESISTOR			
RT2103	AW10168	TIMMER RESISTOR			
RT2104	5040107	SEMI VARIABLE 10KOHM			
RT2105	5040106	SEMI VARIABLE 4.7KOHM			
RT2106	5040106	SEMI VARIABLE 4.7KOHM			
RT2181	5040106	SEMI VARIABLE 4.7KOHM			
RT2201	5040108	SEMI VARIABLE			
D2101	5337354	DIODE MA133			
D2102	5337354	DIODE MA133			
D2103	5337354	DIODE MA133			
D2201	5337031	DIODE 1SV201			
D2202	5337353	DIODE MA132K			
IC2101	CK10522U	IC IR3Y18A			
IC2181	CK11961R	IC NJM431U			
IC2202	1366341	IC ETM3030T0A			
L2181	0773094	CHOKE COIL 100UH+-10%			
L2182	0773094	CHOKE COIL 100UH+-10%			
L2203	BA10131R	COIL 220UH			
L2204	0773121	CHOKE COIL 15UH+-5%			
X2101	BL10111R	CRYSTAL			
BL2201	CS10321	MODULE HTS9554			
CN2201	JD10211	FLEXIBLE CONNECTOR			
CN2202	5844972	CONNECTOR			
CN2203	5846771	CONNECTOR			
CP2101	5172474	TRAP, COIL			
LC2201	DB10161	LCD			
PG2102	1830022	PLUG			
PG2104	1830022	PLUG			
PG2201	EA10348R	CONNECTOR			
PG2203	1830191	PLUG			
D 1	5336552	DIODE S1WBA60			
D 2	4113091	DIODE AU01A			
D 3	4112631	DIODE ERB44-08			

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# HITACHI

VM-E220A  
VM-E220A(PX)  
VM-E521A

TK No. 6601E-1 Image & Information Media Systems Division, Tokai

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VM-E220A/E220A(PX)/E521A

VM-E220A/E220A(PX)/E521A

# HITACHI

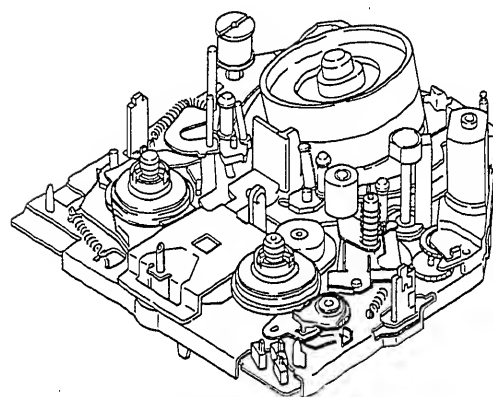
## SERVICE MANUAL

TK

No.6406E

### TH MECHANISM

### Disassembly & Adjustment

**Note**

This manual applies to new 8mm video camera/recorders (TH Mechanism) issued on May, 1994 and later.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

## 8mm VIDEO CAMERA/RECORDER

May 1994 TOKAI Consumer Electronics Division

ENGLISH

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## UNLOADING METHOD

The method to set the unassembled mechanism to the unloading state is described here.

## 1. When the loading motor is normal (Fig. 1)

## &lt;Procedure&gt;

- 1) Set the power supply to 3-5V DC. (Do not apply more than 5V as this could result in a secondary defect.)
- 2) Connect the red wire to the positive terminal and brown wire to the negative terminal to activate unloading.

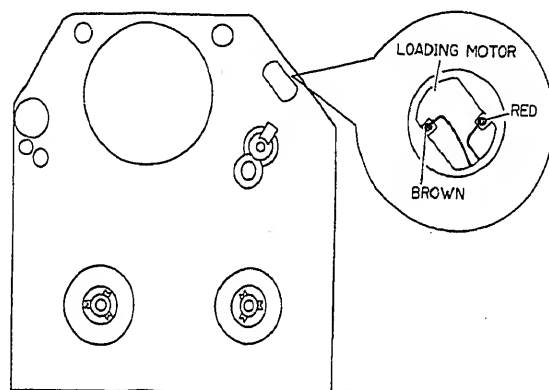


Fig. 1

## 2. When the loading motor is faulty (Fig. 2)

## &lt;Procedure&gt;

- 1) Remove the loading motor.
- 2) Turn the cam gear shown in Fig. 2 with your hand in the direction of arrow (A).

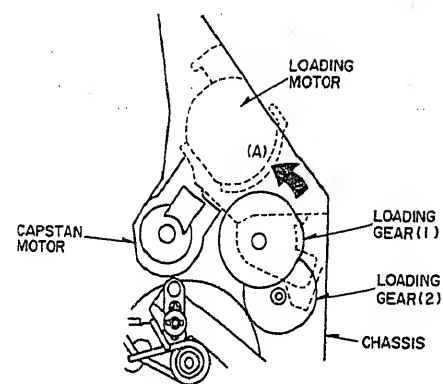


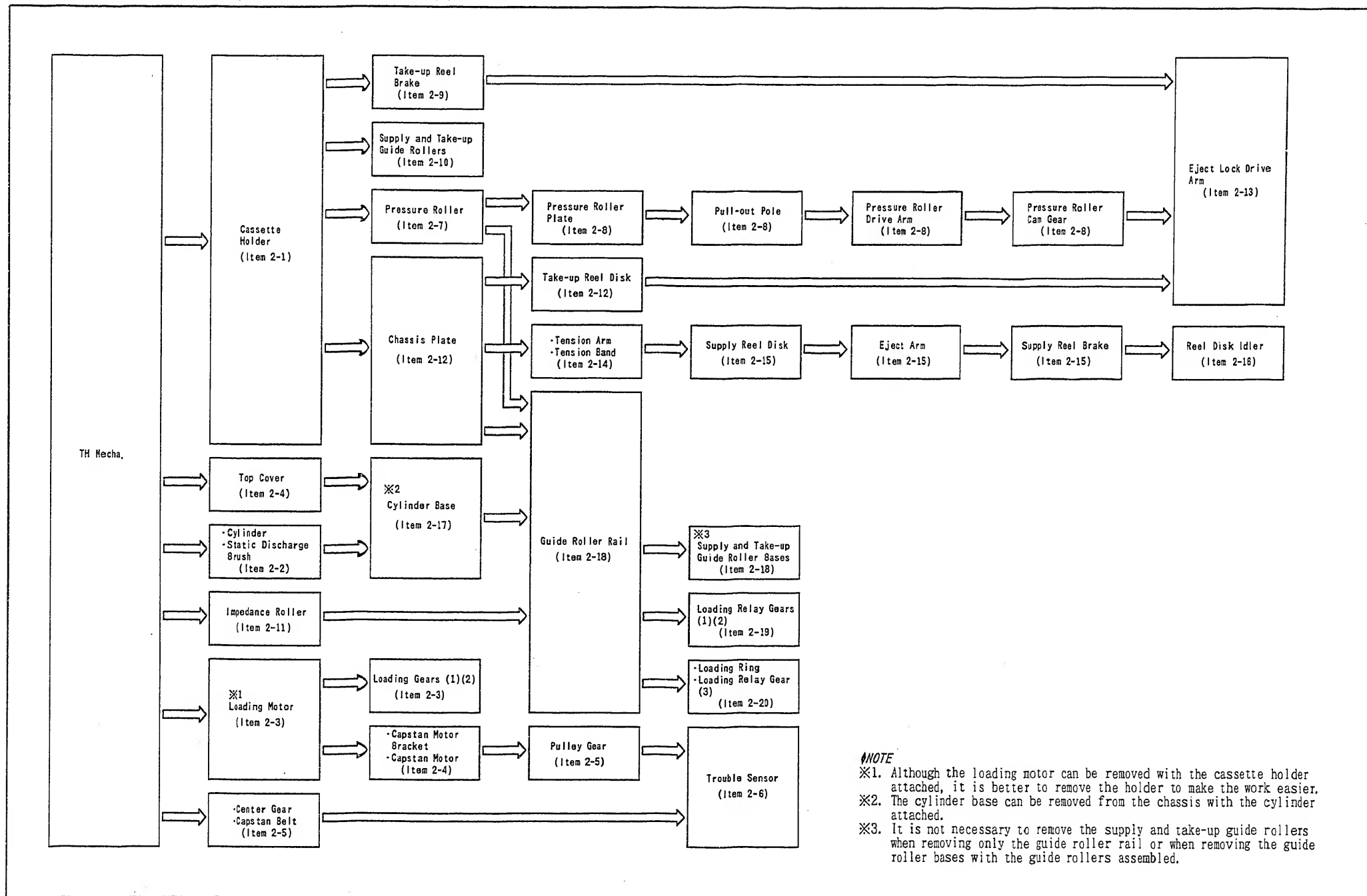
Fig. 2

## DISASSEMBLY METHOD

Refer to the following "Parts hierarchy chart" first when replacing defective parts. This chart shows the parts removal procedure as the hierarchy in which parts should be replaced.

~~\_\_\_\_\_~~

- 1) Search for the part to be replaced in chart.
- 2) Check the part in the rank above the part to be replaced and the start dismantling.
- 3) Replace the defective part and install it by the reverse order to that shown in the hierarchy chart.
- 4) In the following text, remove the part in the order of letters (A,B,C...) shown in the illustrations.



## 1. IDENTIFICATIONS OF MAJOR MECHANICAL COMPONENTS

Numbers in ( ) show the numbers of item that describe how to remove the components.

### 1-1. Top View

- |                             |          |
|-----------------------------|----------|
| 1. Cylinder                 | (2-2)    |
| 2. Capstan Motor            | (2-4, 5) |
| 3. Loading Motor            | (2-3)    |
| 4. Pull-out Pole            | (2-8)    |
| 5. Loading Gear (1)         | (2-3)    |
| 6. Loading Gear (2)         | (2-3)    |
| 7. Pressure Roller Cam Gear | (2-8)    |
| 8. Pressure Roller          | (2-7)    |
| 9. Loading Relay Gear (1)   | (2-18)   |
| 10. Take-up Reel Brake      | (2-9)    |
| 11. Eject Lock Drive Arm    | (2-13)   |
| 12. Take-up Reel Disk       | (2-12)   |
| 13. Reel Drive Idler        | (2-15)   |
| 14. Take-up Guide Roller    | (2-10)   |
| 15. Loading Relay Gear (3)  | (2-19)   |
| 16. Supply Reel Disk        | (2-15)   |
| 17. Supply Reel Brake       | (2-15)   |
| 18. Tension Band Holder     | (2-14)   |
| (Tension Band)              | (2-15)   |
| 19. Eject Arm               | (2-14)   |
| 20. Tension Spring          | (2-14)   |
| 21. Tension Arm             | (2-14)   |
| 22. Supply Guide Roller     | (2-10)   |
| 23. Impedance Roller        | (2-11)   |

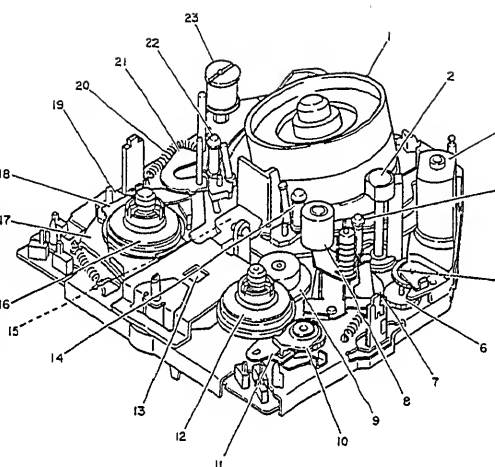


Fig. 1-1

### 1-2. Bottom View

- |                                   |       |
|-----------------------------------|-------|
| 1. Capstan Motor                  | (2-4) |
| 2. Capstan Motor Bracket          | (2-4) |
| 3. Pulley Gear                    | (2-5) |
| 4. Static Discharge Brush         | (2-2) |
| 5. Trouble Sensor Circuit Board   | (2-6) |
| • End LED                         |       |
| • Supply and Take-up END Sensors  |       |
| • Supply and Take-up Reel Sensors |       |
| • Safty Tab Switch                |       |
| • Tape Select Switch              |       |
| • Hi-8 Switch (For Hi-8 model)    |       |
| • Cassette Holder Switch          |       |
| • Mechanism State Switch          |       |
| 6. Capstan Belt                   | (2-5) |
| 7. Center Gear                    | (2-5) |

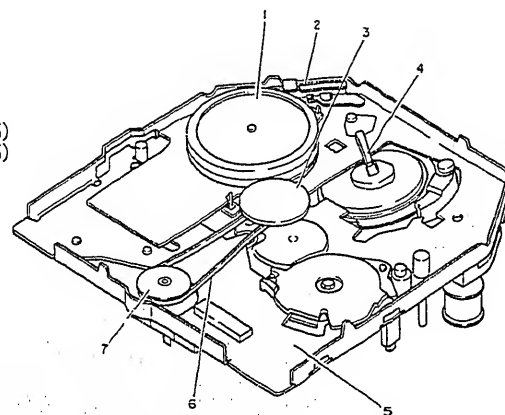


Fig. 1-2

## 2. TAPE TRANSPORT MECHANISM DISASSEMBLY

### - Before Reinstalling the Disassembly -

- Set the camera/recorder to the unloading stop state.

### 2-1. Cassette holder (Fig. 2-1)

- 1) Move the eject lever in the direction of arrow (A) and set the unit to the eject state.

#### Caution when reinstalling

- Reinstall the cassette holder so that section (B) of the eject lock slider is inserted into section (C) of the eject lock arm.

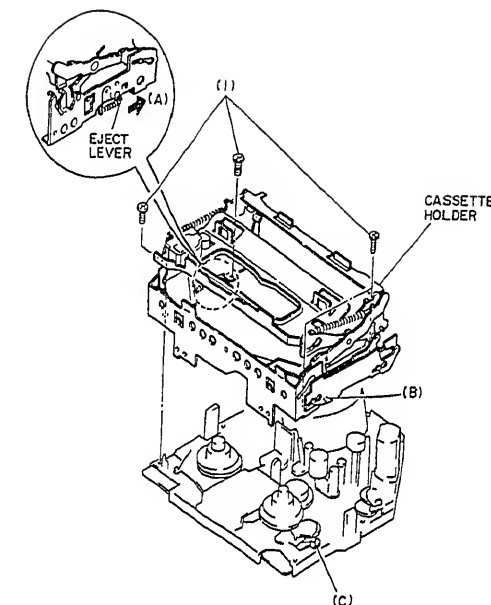


Fig. 2-1

### 2-2. Static discharge brush, cylinder (Fig. 2-2)

- 1) Remove screw (1) holding the static discharge brush.
- 2) Remove two screws (2) holding the cylinder.
- 3) Remove the cylinder in the direction of arrow (A).

#### Cautions during work

- Take care as the spring is removed on its own when screw (B) holding the cylinder is removed.
- Do not touch video head tips with your fingers or tools, etc. during work.

#### Adjustment after reinstalling

- After reinstalling the cylinder, be sure to perform the following adjustment.

[4. ADJUSTMENT AFTER REPLACING CYLINDER] in chapter 2

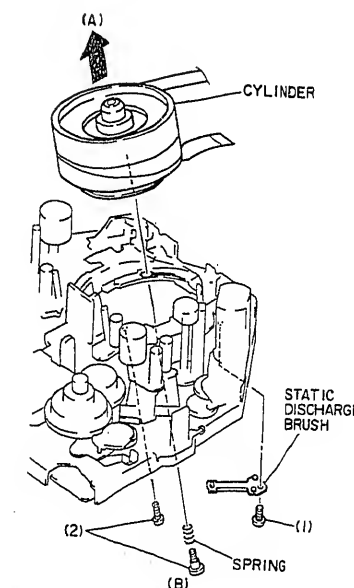


Fig. 2-2

2-3. Loading motor, loading gears (1)(2) (Fig. 2-3)

- 1) Remove two screws (1) holding the loading motor.
- 2) Remove the loading motor and loading gears (1) and (2) from chassis in the direction of arrow (A).

Adjustment after reinstalling

After reinstalling the loading motor and loading gears (1)(2), be sure to perform the following adjustment.

[3. PHASE MATCHING IN ASSEMBLY] in chapter 1

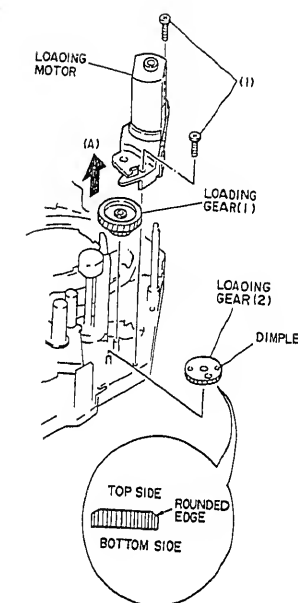


Fig. 2-3

2-4. Tape cover, capstan motor bracket, capstan motor (Figs. 2-4, 2-5)

- 1) Release tab (1) and pull out the tape cover from the chassis. (See Fig. 2-4)
- 2) Remove screw (3) holding the capstan motor bracket. (See Fig. 2-5)
- 3) Remove three screws (2) holding the capstan motor. (See Fig. 2-4)
- 4) Release three tabs (4) holding the capstan motor and remove the capstan motor in the direction of arrow (A). (See Fig. 2-5)

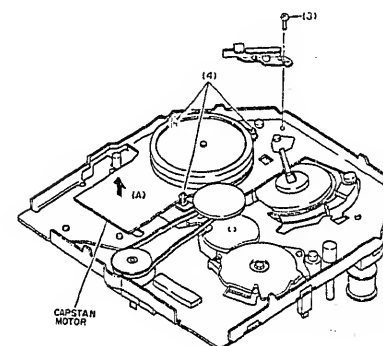


Fig. 2-5

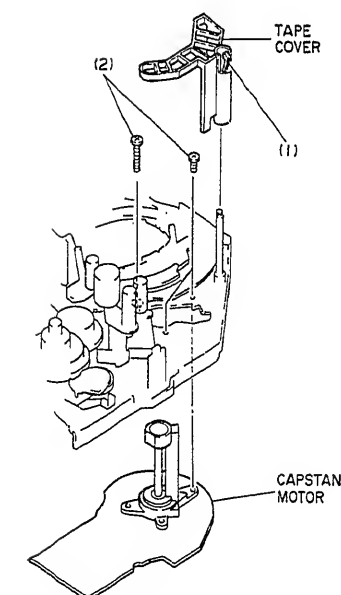


Fig. 2-4



## 2-5. Pulley gear, center gear, capstan belt (Fig. 2-6)

- 1) Remove washer (1) holding the pulley gear.
- 2) Remove washer (2) holding the center gear.
- 3) Remove the center gear and pulley gear together with the capstan belt.

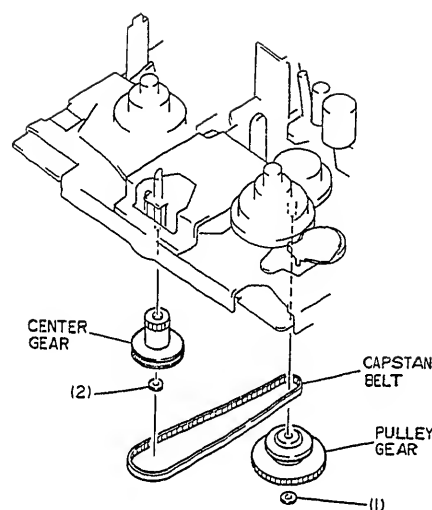


Fig. 2-6

## 2-6. Trouble sensor circuit board (Fig. 2-7)

- 1) Remove five screws (1)
- 2) Slide the supply reel brake in the direction of arrow (A) to release trouble sensor circuit board.

### Caution during work

- The following sensors and switches are installed on the trouble sensor circuit board.
- End LED
- Supply and Take-up End Sensors
- Supply and Take-up Reel Sensors
- Safety Tab Switch
- Tape Select Switch
- Hi-8 Tape Switch (For Hi-8 model)
- Cassette Holder Switch
- Mechanism State Switch

### Adjustment after reinstalling

- After reinstalling the trouble sensor circuit board, be sure to perform the following adjustment.

[3. PHASE MATCHING IN ASSEMBLY] in chapter 1

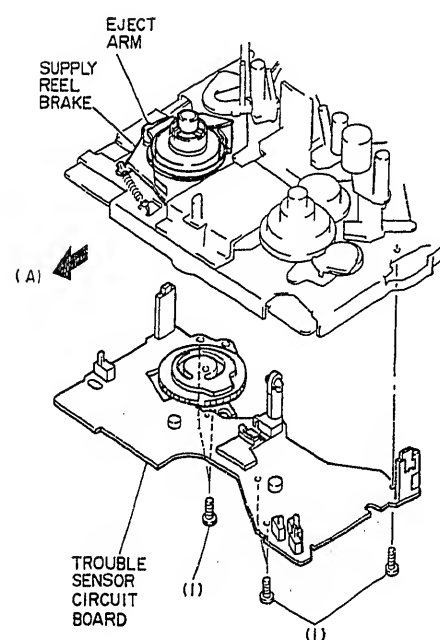


Fig. 2-7

## 2-7. Pressure roller (fig. 2-8)

- 1) Remove washer (1).
- 2) Pull out the pressure roller from the pressure roller shaft.

### Caution during work

- Do not remove the spring of the pressure roller.

### Caution when reinstalling

- Reinstall the pressure roller so that pin (A) of the pressure roller drive arm is inserted into groove (B) in the pressure roller.

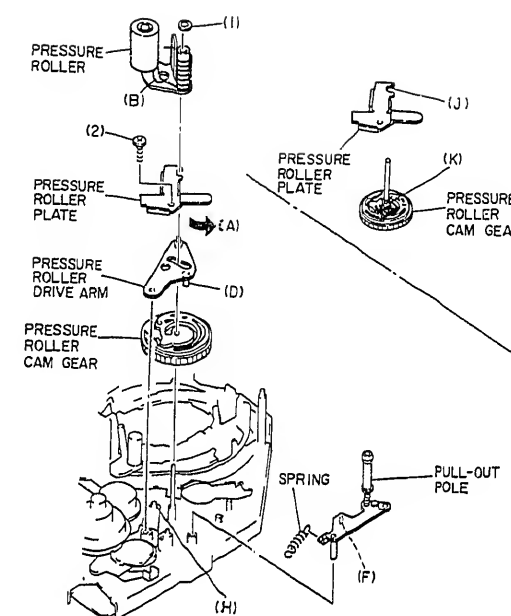


Fig. 2-8

## 2-8. Pressure roller plate, pull-out pole, pressure roller drive arm, pressure roller cam gear (Figs. 2-8, 2-9)

- 1) Remove screw (2) holding the pressure roller plate. (See Fig. 2-8)
- 2) Move the pressure roller plate in the direction of arrow (C) and remove the pressure roller plate. (See Fig. 2-8)
- 3) Remove the spring. (See Fig. 2-8)
- 4) Pull out the pull-out pole from the chassis. (See Fig. 2-8)
- 5) Remove the pressure roller drive arm from the chassis. (See Fig. 2-8)
- 6) Pull out the pressure roller cam gear from the pressure roller shaft. (See Fig. 2-8)

### Cautions when reinstalling

- Reinstall the pressure roller drive arm so that pin (D) of this arm is inserted into groove (E) in the surface of the pressure roller cam gear. (See Figs. 2-8, 2-9)
- Reinstall the pull-out pole so that pin (F) of this pole is inserted into groove (G) in the surface of the pressure roller cam gear. (See Figs. 2-8, 2-9)
- Reinstall the pressure roller cam gear so that pin (H) of the cassette holder lock arm is inserted into groove (I) in the back of the pressure roller cam gear. (See Figs. 2-8, 2-9)
- Reinstall the pressure roller plate (J) by inserting it into the groove (K). (See Figs. 2-8)

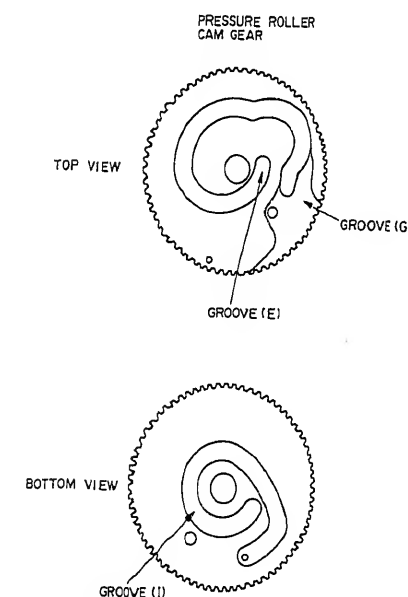


Fig. 2-9

2-9. Take-up reel brake (Fig. 2-10)

- 1) Remove washer (1).
- 2) Remove the take-up reel brake from the chassis.

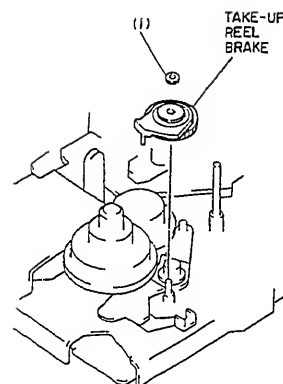


Fig. 2-10

2-10. Supply and take-up guide rollers (Fig. 2-11)

- 1) Loosen screw (1) holding the supply guide roller.
- 2) Loosen screw (2) holding the take-up guide roller.
- 3) Use the special screwdriver (to adjust the guide roller) to turn the top of the supply and take-up guide rollers counterclockwise.

Adjustment after reinstalling

- After reinstalling the supply and take-up guide rollers, be sure to perform the following adjustment.

[3-3. Supply/Take-up Guide Roller Height Adjustment] in chapter 2

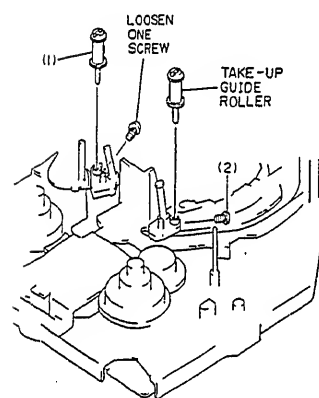


Fig. 2-11

2-11. Impedance roller (Fig. 2-12)

- 1) Use a flat-bladed screwdriver to turn the top of the impedance roller counterclockwise to remove it.

Adjustment after reinstalling

- After reinstalling the impedance roller, be sure to perform the following adjustment.

[3-2. Pull-out Pole and Impedance Roller Height Check/Adjustment] in chapter 2

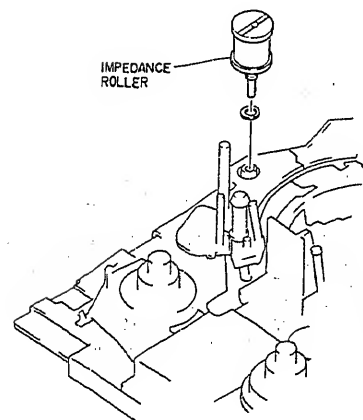


Fig. 2-12

2-12. Chassis plate, take-up reel disk (Fig. 2-13)

- 1) Remove screw (1) holding the chassis plate.
- 2) Remove the chassis plate from the chassis.
- 3) Pull out the take-up reel disk from the take-up reel disk shaft.

Caution when reinstalling

- When reinstalling the chassis plate, make sure the flange covers over the edges of the tension band.

2-13. Eject lock drive arm (Fig. 2-13)

- 1) Remove the eject lock drive arm from the eject lock arm.

Caution when reinstalling

- Reinstall the eject lock drive arm so that pin (B) of the eject lock arm is inserted into hole (A) in the eject lock drive arm.

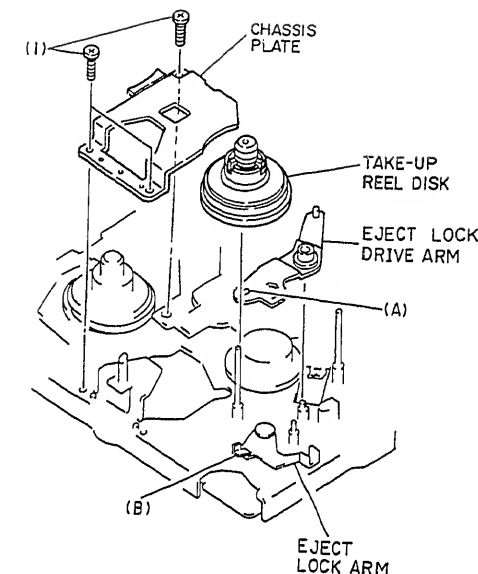


Fig. 2-13

2-14. Tension arm, tension band (Fig. 2-14)

- 1) Remove the tension spring.
- 2) Remove screw (1) holding the tension band.
- 3) Remove washer (2) holding the tension arm.
- 4) Remove the tension arm and tension band from the chassis.
- 5) Release two tabs (3) and remove the tension band from the tension arm.

Adjustment after reinstalling

- After reinstalling the tension arm and tension band, be sure to perform the following adjustment.

[3-1. Tension Pole Position/Tension Torque Adjustments] in chapter 2

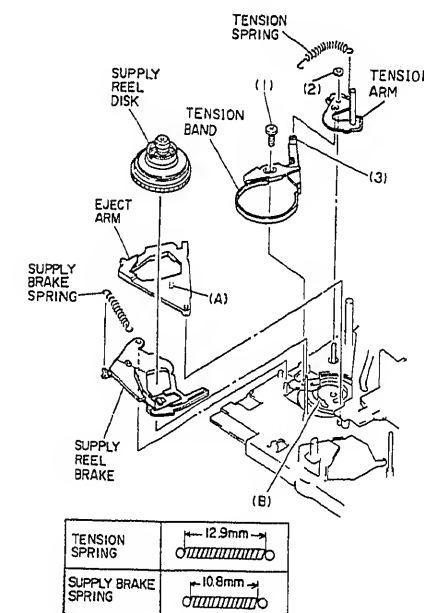


Fig. 2-14

2-15. Supply reel disk, eject arm, supply reel brake (Fig. 2-14)

- 1) Pull out the supply reel disk from the supply reel disk shaft.
- 2) Remove the supply brake spring.
- 3) Remove the eject arm and supply reel brake from the chassis.

Caution when reinstalling

- Reinstall the eject arm so that pin (A) of the arm is inserted into groove (B) in the mechanism state switch.

2-16. Reel drive idler (Fig. 2-15)

- 1) Remove the reel drive idler from the chassis in the direction of arrow (A).

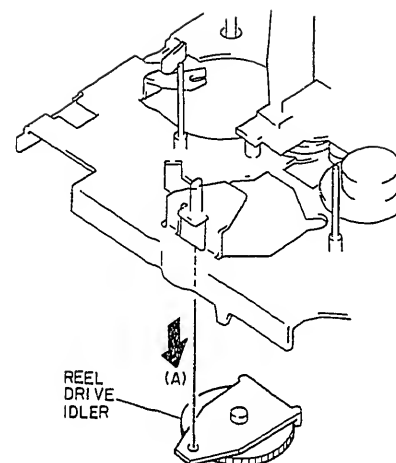


Fig. 2-15

2-17. Cylinder base (Fig. 2-16)

- 1) Remove three screws (1) holding the cylinder base.

2-18. Guide roller rail, supply and take-up guide roller bases. (Fig. 2-16)

- 1) Remove two screws (2) holding the guide roller rail.
- 2) Remove the guide roller rail and guide roller bases from the chassis.
- 3) Remove the supply guide roller base along the groove in the rail in the direction of arrow (A).
- 4) Remove the take-up guide roller base along the groove in the rail in the direction of arrow (B).

Adjustment after reinstalling

After reinstalling the guide roller rail and supply and take-up guide roller bases, be sure to perform the following adjustment.

[3-3. Supply/Take-up Guide Roller Height Adjustment] in chapter 2

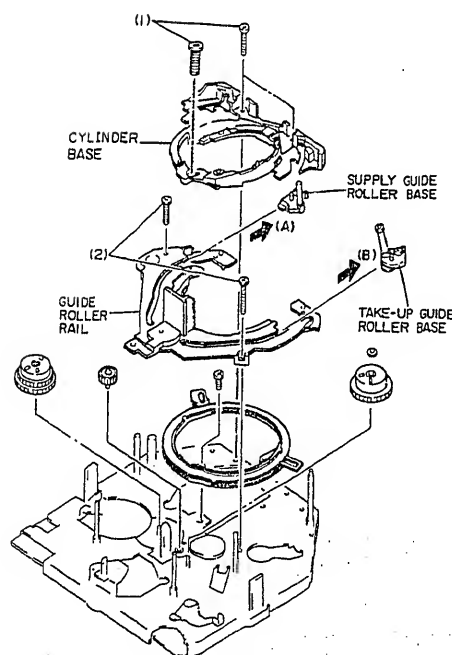


Fig. 2-16

2-19. Loading Relay gears (1)(2) (Fig. 2-17)

- 1) Remove the loading relay gear (2) from the chassis.
- 2) Remove washer (1) holding the loading gear (1).
- 3) Remove the loading relay gear (1) from the chassis.

Adjustment after reinstalling

After reinstalling the loading relay gears (1) and (2), be sure to perform the following adjustment.

[3. PHASE MATCHING IN ASSEMBLY] in chapter 1

2-20. Loading ring, loading relay gear (3) (Fig. 2-17)

- 1) Remove screw (2) holding the loading ring.
- 2) Remove the loading ring from the chassis.
- 3) Remove the loading relay gear (3) from the chassis.

Adjustment after reinstalling

After reinstalling the loading ring and loading relay gear (3), be sure to perform the following adjustment.

[3. PHASE MATCHING IN ASSEMBLY] in chapter 1

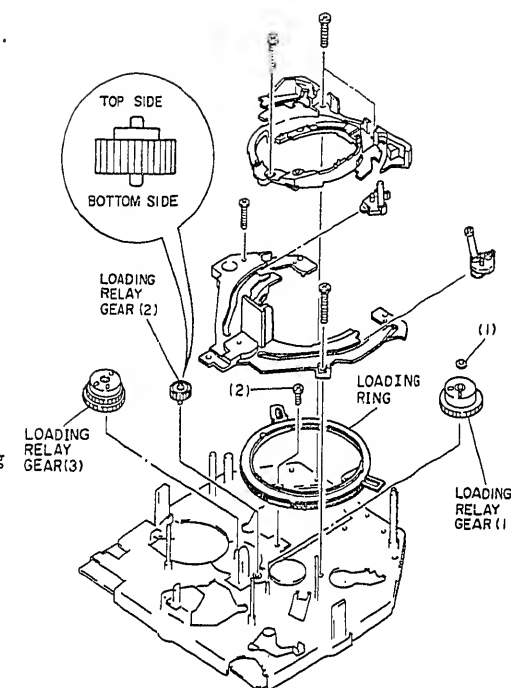


Fig. 2-17

### 3. PHASE MATCHING IN ASSEMBLY

#### Caution

- Here, the phases of all components are aligned in the unloading/stop mode. Be sure to set the camera/recorder to the unloading/stop mode before dismantling the tape transport block.
- Be sure to check and adjust when reinstalling the mechanism state switch, loading motor, gears and loading ring.

#### 3-1. Mechanism State Switch [Mecha. State Sw] (Fig. 3-1)

##### Procedure of phase matching in assembly

- 1) Align mark (A) and mark (a) on the mecha. state sw and mecha. state sw case.

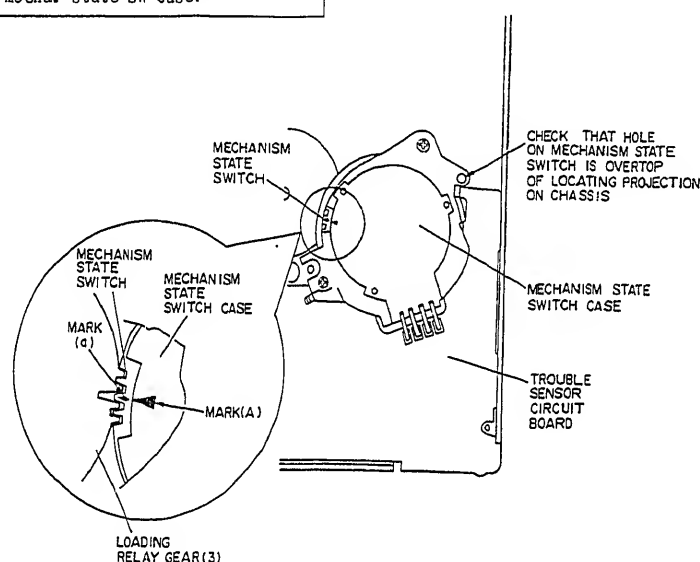


Fig. 3-1

#### 3-2. Loading Gears and Loading Ring (Figs. 3-2, 3-3)

#### Caution

- Be careful that the phase of the mechanism state switch which was matched in item 3-1 does not drift.

##### Procedure of phase matching in assembly

- 1) Align the markings of the loading ring and gears as shown in Fig. 3-2.

Caution: When reinstalling the pressure roller cam gear, set the eject lock arm to the position shown in Fig. 3-3 and check that pin (j) is inserted into groove (J) in the back of the pressure roller cam gear.

Advice: If it is difficult to see marking (D) on the lower loading ring, match the phase by the following procedure.

- 1) Set the upper and lower loading rings to the state shown in Fig. 3-2. (Watch the guide roller fixing section.)
- 2) Move the upper and lower loading rings so that holes (H) overlap each other.
- 3) If holes (H) overlap each other, the phase of the loading ring is correct.
- 4) If holes (K) overlap each other, the phase of the loading relay gear (4) is correct.

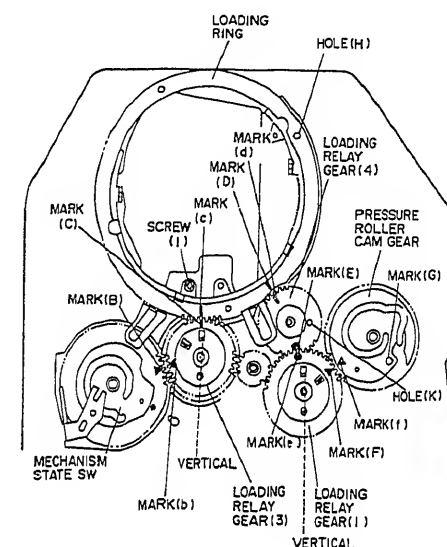


Fig. 3-2

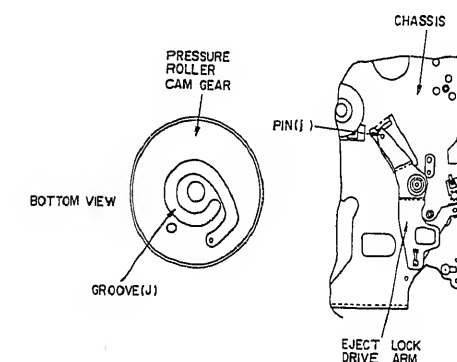
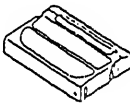
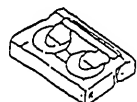
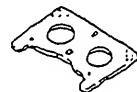



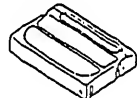


Fig. 3-3

CHAPTER 2

JIGS AND TAPES FOR ADJUSTMENT

<p>1. ALIGNMENT TAPE COLOR BAR/400Hz NTSC (20HSC-2): No. 7099231 PAL (20HSC-3): No. 7099232</p> 	<p>2. CASSETTE TORQUE METER NTSC(SRK-8T-132): No. 7099235 NTSC(SRK-8T-112): No. 7099385 PAL (SRK-8T-232): No. 7099236 PAL (SRK-8T-212): No. 7099402</p> 		
<p>3. MASTER PLANE No. 7099237</p> 	<p>4. REEL DISK HEIGHT JIG No. 7099238</p> 	<p>5. SPECIAL DRIVER No. 7099239</p> 	<p>6. ATF-R JIG (SW3:ON) No. 7099461</p> 
<p>★7. BLANK TAPE NTSC: P6-120 PAL : P5-90</p> 		<p>NOTE</p> <p>1: Always set SW3 on the ATF-R jig to ON. 2: The ATF jig (No. 7099386) can also be used in place of ATF-R jig to adjust this model.</p>	

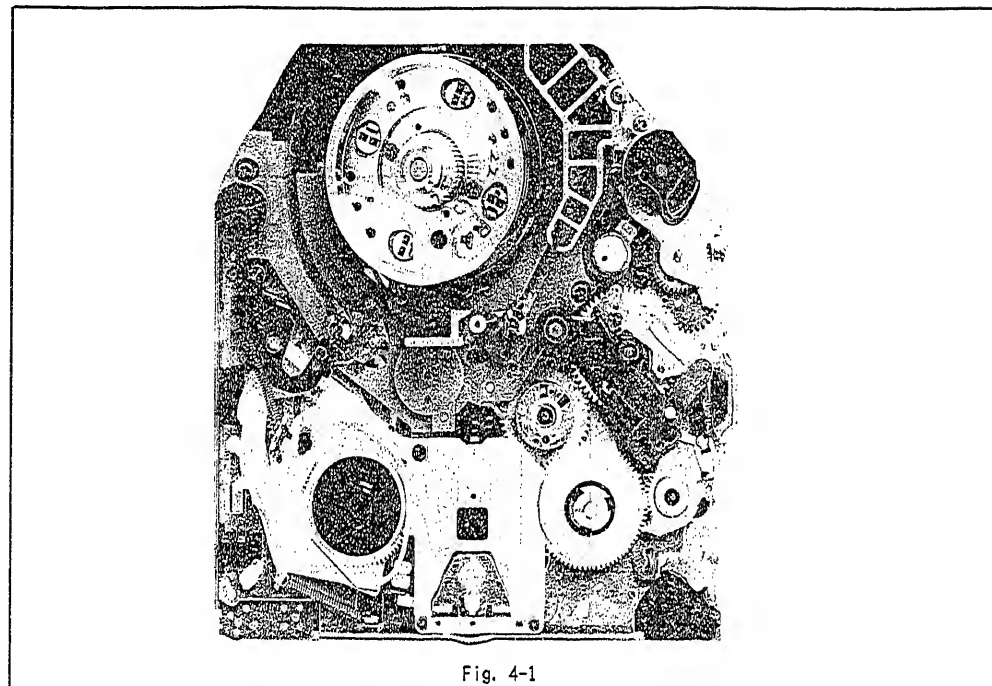
MARKS

- ※ : New Jigs and tools
- ★ : Goods on the Market
- ◆ : Optional Accessory
- ◎ : Accessory

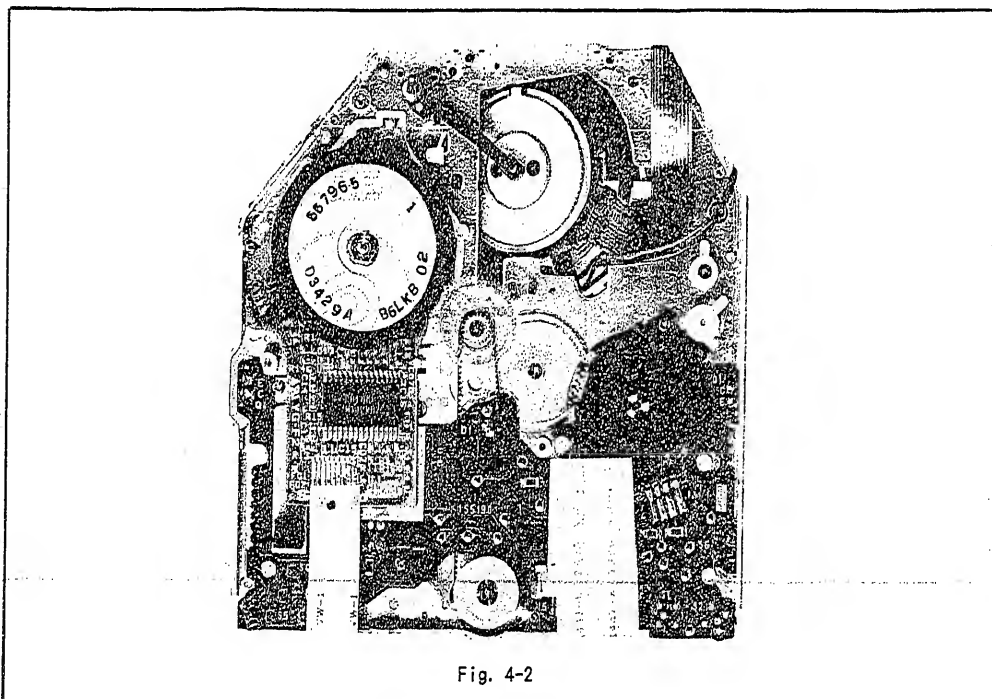
4. PHOTOS OF MECHANISM

Refer to these when reinstalling and perform phase matching in assembly.

4-1. Top View of Mechanism

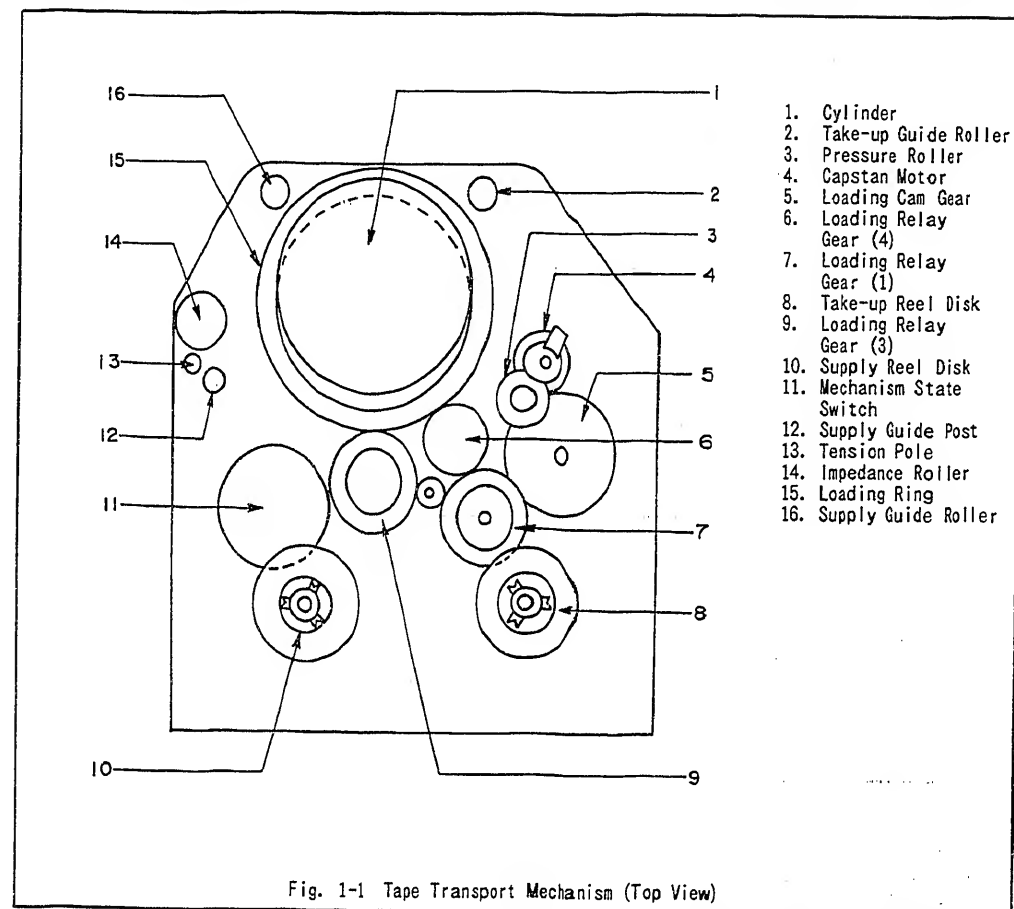


4-2. Bottom View of Mechanism



## MECHANISM ADJUSTMENT

## 1. MAJOR MECHANICAL COMPONENTS



## 2. BEFORE STARTING ADJUSTMENT

- 1) Be sure to set the camera/recorder to the unloading/stop mode when dismantling the tape transport block.
- 2) Do not re-use washers once they have been removed.
- 3) Dismantle the mechanism, referring to "DISASSEMBLY" so the mechanism adjustment can be done.
- 4) With this camera/recorder, mechanical adjustments (tape transport system check/adjustment) can be done with the unassembled VTR block (without connecting the camera block).
- 5) To set the camera/recorder to the playback mode without loading a cassette, shut off the light striking the end LEDs in the chassis and press the playback button. (Shut off the light striking the end LEDs in the eject state.)

## 3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via the cylinder. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drifted.

## 3-1. Tension Pole Position/Tension Torque Adjustments (Fig. 3-1)

## Caution

- Be sure to perform these adjustments after reinstalling the tension arm, tension band and tension spring.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
		• Shut off the light striking the end LEDs and set to the playback mode without loading a cassette	• Tension band holder
• Cassette torque meter (SRK-8T-112/212)	• Load a cassette torque meter	• Set to the playback mode.	• Tension spring
<p>◆ Adjustment procedure</p> <p>◆ Tension pole position adjustment (Fig. 3-1)</p> <ol style="list-style-type: none"> <li>1) Hook the tension spring to position (B) of the tension spring holder.</li> <li>2) Loosen screw (D) holding tension band holder (E).</li> <li>3) Adjust the position of tension band holder (E) so the relationship between the hole in the tension arm and guide roller rail is as shown in Fig. 3-1.</li> <li>4) Tighten screw (D).</li> <li>5) Repeat playback and stop several times and check that the specification in step 3) is satisfied. If it is not satisfied, re-adjust the tension pole position.</li> </ol> <p>◆ Tension torque adjustment (Fig. 3-1)</p> <ol style="list-style-type: none"> <li>1) Hook the tension spring to position (B) of the spring holder.</li> <li>2) Set the tension torque on the supply side to 4.5 - 5.5 g-cm.</li> </ol> <p>If it is more than 5.6 g-cm: Move the tension spring to position (A) of the spring holder.</p> <p>If it is less than 4.4 g-cm: Move the tension spring to position (C) of the spring holder.</p>			

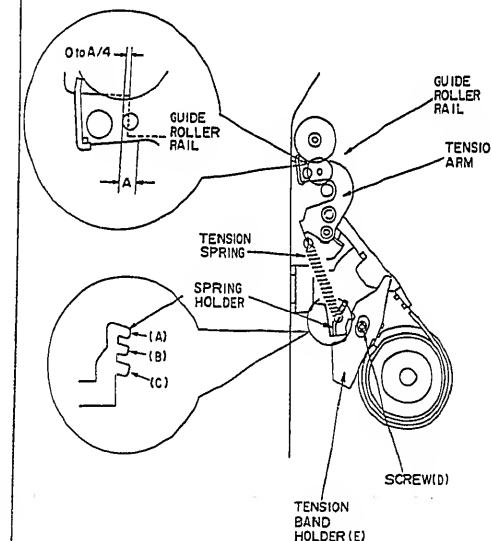


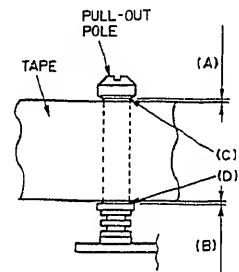
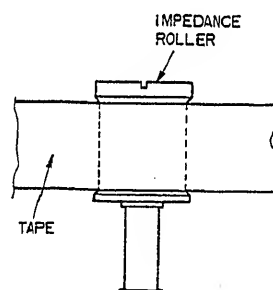
Fig. 3-1



### 3-2. Pull-out Pole and Impedance Roller Height Check/Adjustment (Figs. 3-2, 3-3)

#### Caution

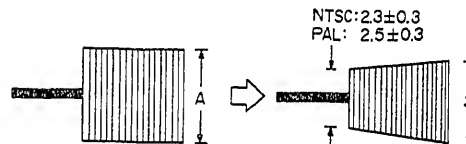
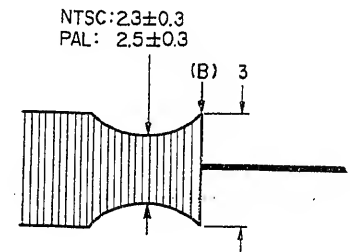
- 1) Be sure to check this item after reinstalling the pull-out arm and impedance roller. Basically, the pull-out pole height should not be adjusted. Adjust the pull-out height only if it is abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
• Blank tape • Special driver		• Load a blank tape and set to the playback mode.	• Top of pull-out pole
<p>◆ Checking/adjustment procedure</p> <p>◆ Pull-out Pole</p> <p>1) Check that the tape is running at the center of the pull-out arm. If it is not, adjust the height of the arm.</p> <p>2) Set to the reverse search mode.</p> <p>3) Check that the tape is running between (C) and (D) and also no curling or creasing occurs.</p> <p>4) If step 3) cannot be confirmed, fine adjust the height of the pull-out arm.</p>			
 <p>(A) = (B)</p> <p>Fig. 3-2</p>			
<p>◆ Impedance Roller</p> <p>1) Check that there is no curling or creasing of the tape around the impedance roller. If curling or creasing occurs, check the installation of the impedance roller.</p>			
 <p>Fig. 3-3</p>			

### 3-3. Supply/Take-up Guide Roller Height Adjustment (Figs. 3-4, 3-5)

#### Caution

- Be sure to check this item after reinstalling the supply guide roller and take-up guide roller. Basically, the height of the supply/take-up guide rollers should not be adjusted. Adjust these heights only if they are abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
• Alignment tape • Oscilloscope • ATF-R jig • Special driver	• Test Plug on Main board • TP1 (SW25/30) on ATF-R jig • TP2 (GND) on ATF-R jig • TP3 (FM OUT) on ATF-R jig	• Connect the ATF-R jig to test plug. • ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	• Top of guide rollers
<p>◆ Adjustment procedure</p> <p>Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig. Connect the ATF-R jig before supplying power.</p> <p>1) Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to VIDEO position.</p> <p>2) Connect an oscilloscope to TP3 on the ATF-R jig.</p> <p>3) Synchronize the oscilloscope with TP1 (SW25/30) on the ATF-R jig.</p> <p>4) Set the oscilloscope to (+) slope.</p>			
<p>◆ Supply Guide Roller (Fig. 3-4)</p> <p>5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.</p> <p>6) Adjust the height of the supply guide roller so the waveform is flat.</p> <p>7) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.</p> <p>8) Set SW1 on the ATF-R jig to ON.</p> <p>9) Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduations.</p> <p>10) Adjust the height of the supply guide roller so minimum amplitude of the waveform is set to NTSC: 2.3±0.3/PAL: 2.5±0.3 graduations.</p>			
 <p>Fig. 3-4</p>			
<p>◆ Take-up Guide Roller (Fig. 3-5)</p> <p>11) Set the oscilloscope to (-) slope.</p> <p>12) Adjust the voltage level control of the oscilloscope so that portion (B) of the waveform is set to 4 graduations.</p> <p>13) Turn RT1 on the ATF-R jig counterclockwise so that portion (B) of the waveform is set to 3 graduations.</p> <p>14) Adjust the height of the take-up guide roller so the minimum amplitude of the waveform is set to NTSC: 2.5±0.3/PAL: 2.3±0.3 graduations.</p> <p>Caution: After adjustment is completed, be sure to reverse the modification to ATF-R jig.</p>			
 <p>Fig. 3-5</p>			

#### 4. ADJUSTMENT AFTER REPLACING THE CYLINDER (Figs. 4-1, 4-2)

When the cylinder is replaced, the height relative to the guide roller drifts, therefore the tape transport system and servo circuit should be adjusted. Check and adjust in the following order.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
• Alignment tape • Oscilloscope • ATF-R jig • Special driver	• Test Plug on Main board • TP1(SW25/30) on ATF-R jig • TP2(GND) on ATF-R jig • TP3(FM OUT) on ATF-R jig	• Connect the ATF-R jig to test plug. • ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	• Top of guide rollers
<p>● Adjustment procedure</p> <p>Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig.</p> <p>1) Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to the VIDEO position.</p> <p>2) Connect an oscilloscope to TP3 on the ATF-R jig.</p> <p>3) Synchronise the oscilloscope with TP1(SW25/30) on the ATF-R jig.</p> <p>4) Set the oscilloscope to (+) slope.</p> <p>5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.</p> <p>6) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.</p> <p>7) Set SW1 on the ATF-R jig to ON.</p> <p>8) Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduations.</p> <p>9) Adjust the height of the supply guide roller so the minimum amplitude of the waveform is set to NTSC: <math>2.3 \pm 0.3</math> / PAL: <math>2.5 \pm 0.3</math> graduations. (See Fig. 4-1)</p> <p>10) If this cannot be confirmed, adjust the height of the supply guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".</p> <p>11) Set the oscilloscope to (-) slope.</p> <p>12) Turn RT1 on the ATF-R jig so that portion (B) of the waveform is set to 3 graduations.</p> <p>13) Check that the minimum amplitude of the waveform is set to NTSC: <math>2.3 \pm 0.3</math> / PAL: <math>2.5 \pm 0.3</math> graduations. (See Fig. 4-2)</p> <p>If this cannot be confirmed, adjust the height of the take-up guide roller, referring to "3-3. Supply/Take-up Guide Roller Height Adjustment".</p> <p>14) Perform the following electrical adjustments.</p> <ul style="list-style-type: none"> <li>• Head switching point adjustment</li> <li>• Record luminance/chroma level adjustment</li> </ul> <p>Caution: After adjustment is complete, be sure to reverse the modification to ATF-R jig.</p>			

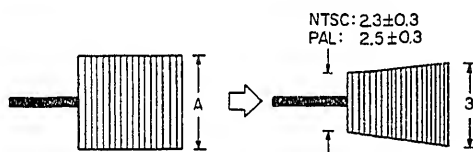


Fig. 4-1

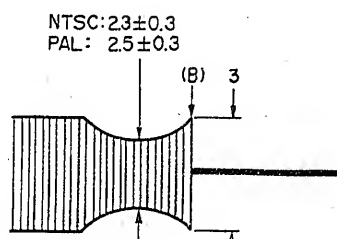


Fig. 4-2

#### 5. CHECKING THE TORQUE

There are two types of cassette torque meter. Choose the applicable one for the measurement to be performed.

Item	VCR mode	Measured reel disk	Torque value	Torque cassette used
Take-up torque	Playback	Take-up	7-13 g-cm	SRK-8T-212 SRK-8T-232
Rewind torque	Reverse search	Supply	25-37 g-cm	SRK-8T-232
Take-up brake torque	Reverse search to stop	Take-up	10 g-cm or more	SRK-8T-212 SRK-8T-232
Slack removal torque	Unloading	Supply	25-37 g-cm	SRK-8T-232

#### 6. MODIFICATION TO ATF-R JIG (Fig. 6-1)

Caution: The ATF-R jig must be modified for the following adjustments.  
After completing these, be sure to reverse the modification.

- 3-3. Supply/Take-up Guide Roller Height Adjustment
- 4. ADJUSTMENT AFTER REPLACING THE CYLINDER

##### ● Procedure

- 1) Short terminal (A) of the resistor and TP2 (GND) on the ATF-R jig.

Note: This modification makes SW2 on the ATF-R jig a PCM area observation switch.

Caution: Use a shorting clip, etc. to short the parts; this can be removed easily after adjustment is completed.  
A modification is also necessary in the same way when the ATF jig is used.

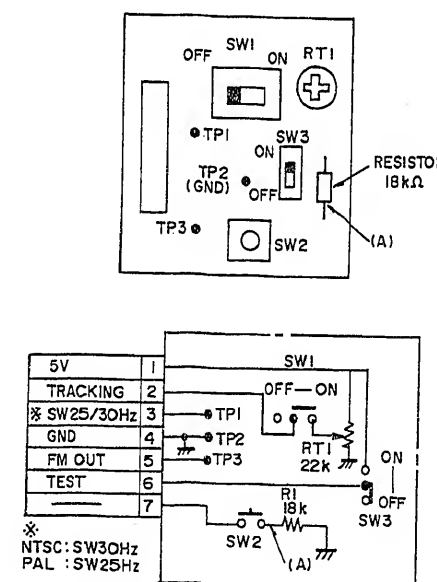


Fig. 6-1

# CHAPTER 3

## MAINTENANCE/INSPECTION PROCEDURE

### 1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

### 2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

Average hours used per day	When inspection is necessary		
	About 6 months	About 9 months	About 18 months
One hour			
Two hours			
Three hours			

### 3. Check before starting Repairs

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

### 4. Tools Needed for Inspection and Maintenance

- (1) Head cleaning kit
- (2) VCR oil and grease (Table 3)
- (3) Alcohol
- (4) Gauze
- (5) Cleaning tape (Maxell 8M-CL MCA (dry type))

Table 3 Locations for Greasing and Oiling

Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

### 5. Maintenance Procedures

#### 5-1 Cleaning

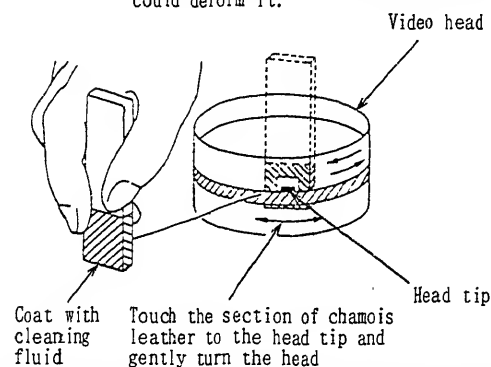
##### (1) Cleaning video head

First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

##### (2) Cleaning the tape transport system and drive system, etc.

Wipe with gauze moistened with alcohol.

- Notes: 1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
- 2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.



### 5-2 Lubrication

#### (1) Guide lines for lubricating with oil

Use the oiler to apply one or two drop of Sonic Slidas oil. Make sure not to use too much oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with alcohol.

#### (2) Periodic oil lubrication

Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

### 5-3 Greasing

#### (1) Greasing guidelines

Apply grease Froil or Molicoat, with a stick or brush. DO not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistened with alcohol.

#### (2) Periodic greasing

Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

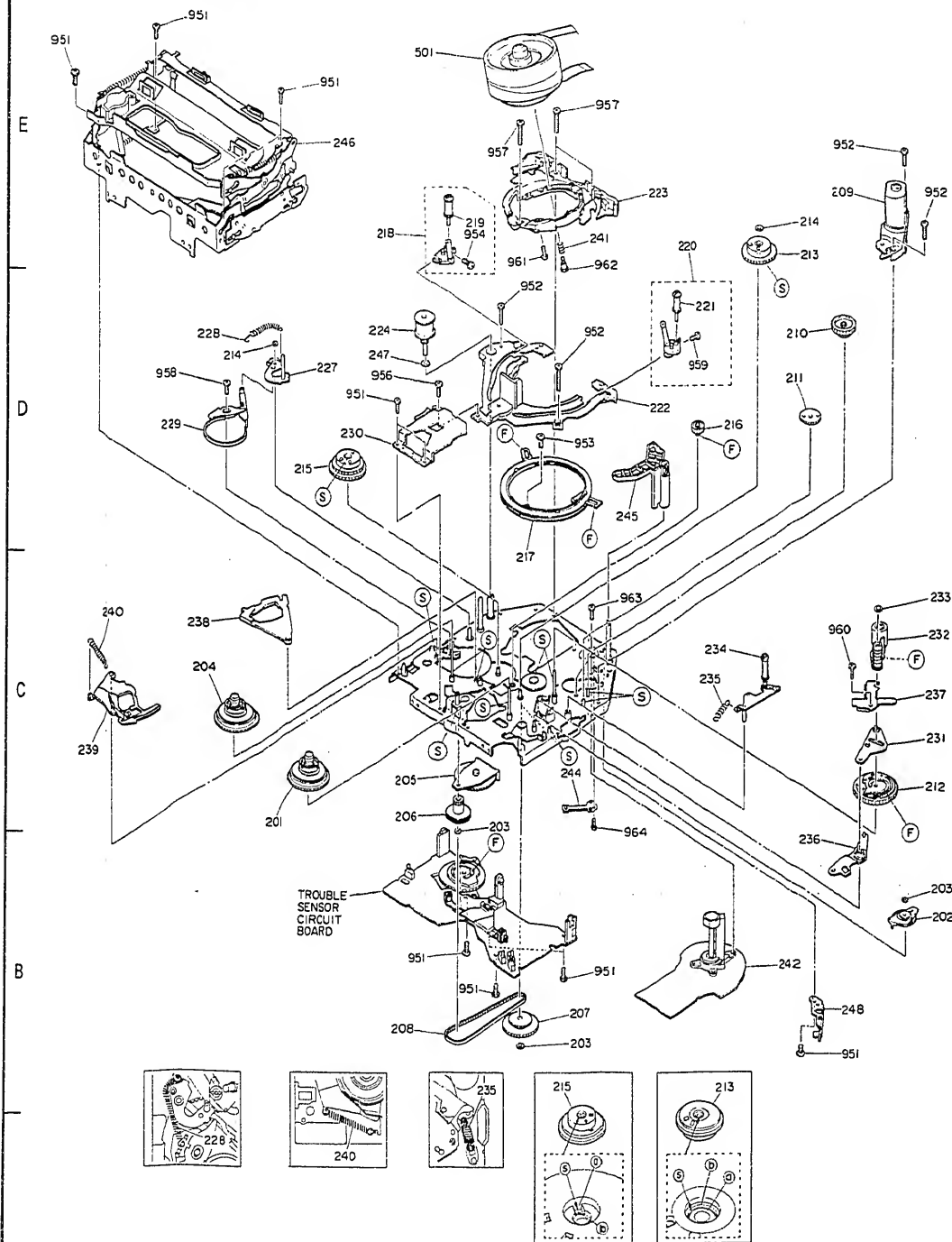
Caution: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

Component	500	1000	1500	2000	2500	3000
Video heads (cylinder assembly)	C	C/R	C	C/R	C	C/R
Supply guide roller	C	C	C	C	C	C
Supply guide pole	C	C	C	C	C	C
Take-up guide roller	C	C	C	C	C	C
Pull-out pole	C	C	C	C	C	C
Tension pole	C	C	C	C	C	C
Tension band		R		R		R
Supply reel disk	C	C	C	C/R	C	C
Take-up reel disk	C	C	C	C/R	C	C
Pressure roller	C	C	C	C/R	C	C
Impedance roller	C	C	C	C	C	C
Capstan belt				R		
Reel drive idler				R		
Capstan shaft (capstan motor)	C	C	C	C/R	C	C
Loading motor				R		

C : Cleaning

R : Parts replacing

## EXPLODED VIEW



NOTE: If you change the Loading Relay Gears, please use oiler to apply Sanic Slidas oil between ⑩ to ⑩. If oil is not applied, Loading Relay Gears will be locked.

# HITACHI

TH MECHANISM

TK

No.6406E

TOKAI Consumer Electronics Division